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GRADE 7A

NORTH AMERICA

UNITED STATES AND ITS DEPENDENCIES

HARMON B. NIVER
EDWARD D. FARRELL

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GEOGRAPHY

GRADE 7A

NORTH AMERICA
THE UNITED STATES AND ITS DEPENDENCIES

BY

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PREFACE

THIS book provides material for a comprehensive study of the United States and its dependencies, arranged in the proper sequence for systematic geographical study. Those topics which are in their nature fundamental and causal are first presented, and subsequent topics, such as production, industries, the location of cities and trade, are treated as natural consequences. The chapter on North America is given for the convenience of classes needing a review of the continent as a preliminary to the study of the United States.

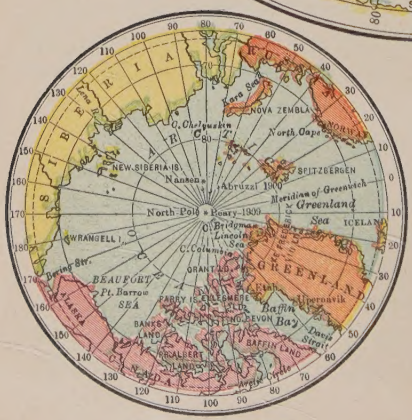
The second chapter describes the United States according to physical divisions, presenting under each division the leading features of surface, climate, drainage, resources, and industries. Chapter III continues the study of the United States according to productive areas. Closely related to these and treated in connection with them are the following: Location of Industries, Location and Growth of Cities, Domestic and Foreign Trade. Chapters IV, V, and VI are devoted to the study of the chief productions of the United States, classified as vegetable, animal, and mineral. The chief sources, nature, and value of each product are considered as well as important manufacturing processes and the distribution of products. In connection with these chapters, the graphic illustrations in the accompanying maps and in the APPENDIX, *pages* i–iii, will be found helpful, and pupils may be required to construct similar diagrams. Following the chapters on production is a summary of the leading manufactures of the country, the great industrial centers, transportation and trade. The tables of exports and imports given on *pages* 110–111 serve not only for reference, but supply important topics for research and review. The pupil's previous study of foreign countries may be reviewed by finding out the reasons why some countries named in column three of the tables are *purchasers* of certain products and *producers* of others. The same products also are found in both tables. The reason for this should be discovered, if possible. The necessary

investigations will lead to a comparison of our resources with the resources of other countries.

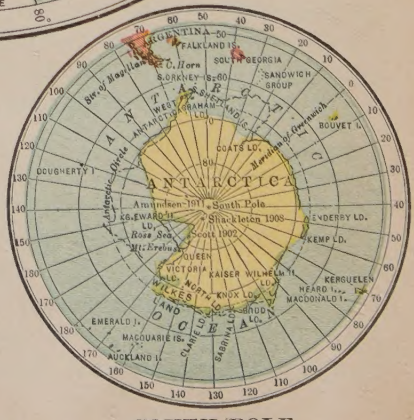
The increasing importance at the present time of the states as individual members of the Union, and their distinctive features, as industrial and political units, call for the special treatment of state groups and individual states given in chapters VIII to XII. Emphasis is laid upon their location in one or more of the physical divisions of the United States, their characteristic industries, cities, and contributions to the general wealth of the country. Interesting matters of history have also been added. In connection with the study of the states the important products given in chapters IV to VI may be reviewed. For example, when the pupil studies lumbering in Maine, he may review the paragraphs on forests and lumbering in chapter IV; a map may be constructed showing the distribution of forests in the United States and the location of the chief lumber towns and shipping ports. The fact should be noted that the United States is the largest importer of lumber as well as the largest exporter, and this anomaly should be investigated. In a similar manner the great industries of other leading states may be reviewed. While serving to combine related paragraphs in different parts of the book this method will stimulate the interest of the pupil and train him in logical methods of study. Chapter XIII gives a brief description of the geographical and industrial features of the dependencies of the United States and sets forth their usefulness to the home country.

The authors desire to express their indebtedness to Mr. Arthur Hinds, and Mr. George C. Field for helpful criticism of the text, and to Professor Byron Cummings of the University of Utah for the view of the Augusta Natural Bridge.

WESTERN HEMISPHERE

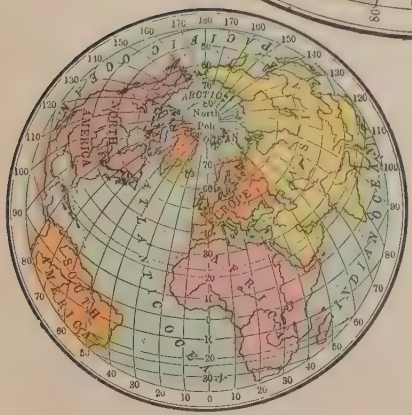


NORTH POLE

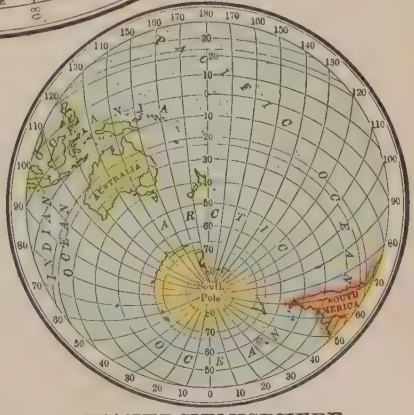


SOUTH POLE

EASTERN HEMISPHERE



LAND HEMISPHERE



WATER HEMISPHERE

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GEOGRAPHY

CHAPTER I

NORTH AMERICA

Answer the questions on the PHYSICAL MAP, *page* 9, also questions on the RELIEF MAP, *page* 13, and on the POLITICAL MAP, *page* 21.

Size and Location. — North America ranks third in size among the continents. It has, however, only one fourth as many inhabitants as Europe, although it is nearly three times the size of that continent. Its **length** from north to south is about 5,000 miles, while its **width** varies from 40 miles in Panama to 3,000 miles in the Dominion of Canada. The northwestern part is distant from Asia only 36 miles, while the eastern extremity is nearly 2,000 miles from the nearest point on the coast of Europe. The great commercial seaports of the Atlantic coast are, however, more than 3,000 miles distant from those of Europe, while the Pacific seaports are about 6,000 miles from the ports of Europe by the Panama route.

Outline. — In shape this continent is nearly triangular. The coast **indentations** are deeper and more frequent than those of any other continent except Eurasia. The northern and eastern coasts are the most irregular, but the northern half of the western coast also is indented by bays and fringed with **islands**. South of the fiftieth parallel the chief inlets on the west that are serviceable as **harbors** are Puget sound, San Francisco bay, San Pedro bay at Los Angeles, and the gulf of California.

The most irregular part of the eastern coast lies north of New York City. Between this point and the gulf of St. Lawrence are found hundreds of harbors of all sizes and depths. Some are large and deep enough for ocean steamers, and the smallest afford protection for trading and fishing vessels. Portions of this coast are skirted by thousands of islands with a proportionate number of sounds and inlets. Northward from the gulf of St. Lawrence the coast is equally irregular and the islands nearly as numerous, but the passages as well as the ocean near these shores are blocked with ice during the greater part of the year and are of little service to man. The coast from New York southward to the isthmus of Panama

is quite regular. The deepest inlets are Delaware bay, Chesapeake bay, the gulf of Mexico, and the gulf of Honduras, on the coast of Central America; but good harbors are fewer than along the northern section. The coast lands of this part are generally flat and sandy, the off-shore waters shallow, and the rivers are inclined to fill up at their mouths with silt.

Polar Exploration. — Two objects have, during the last three centuries, drawn sailors and explorers into the Arctic regions of North America. The first was the discovery of a short **passage** by water between the Atlantic and Pacific oceans; the second was the ambition to reach the **North Pole** — the geographical point in 90 degrees north latitude where all meridians meet and whence all directions are south. The first object became of importance soon after it was discovered that the New World blocked the road by sea to India. The early efforts of Willoughby and Hudson were followed by a succession of heroic achievements which were crowned with success in 1878–79 when **Nordenskjöld** took his ship, the *Vega*, northeastward around the coasts of Europe and Asia, entering the Pacific ocean through Bering strait.

The quest of the North Pole has enlisted the efforts of many heroic men, among whom are Lieutenant **Greely**, Lieutenant **De Long** of the ill-fated *Jeannette*, and Commander **Robert E. Peary** — all Americans. Peary's eighth and last journey into the Arctic regions resulted in his attainment of the latitude of the Pole early in 1909. His success is the result of long experience and of special preparation for the work. His ship, the *Roosevelt*, was specially built for the difficult voyage, and was equipped with the best appliances that modern scientific skill could devise. The *Roosevelt* left New York City on July 6, 1908, reaching cape York in Baffin bay on the first of August. From here the voyage was continued northward among the ice floes through Smith sound and Robeson channel to cape Sheridan on the northern coast of Grant Land. Here the ship was left, and the remainder of the journey was made on sledges drawn by Eskimo dogs. The point of departure was cape Columbia, in latitude about 82 degrees. The winter was spent in prep-

---

NORTH POLAR REGIONS. — (1) In what zone are these regions? (2) What is the shape of this zone? By what circle bounded? How can you find its area? (3) What lands enclose the Arctic ocean? (4) Trace McClure's passage from Davis strait to Bering strait. (5) What is the date of Peary's discovery of the North Pole? Trace his routes. (6) Trace the routes of Nansen and the Duke of Abruzzi. (7) Give the location of the North Magnetic Pole. (8) What two capes on the northern shore of Grant Land? (9) Give the location of De Long islands; of Nordenskjöld sea. What do these names suggest? (10) What was the date of McClure's voyage? Of Nansen's voyage? Of Peary's latest voyage? (11) Find out something about the explorations of Sverdruf, Kane, Cagni, and others, whose names appear on the map.

NORTH POLE
Peary, April 6, 1909
Peary, 1906
Nansen, 1895
86°14
Cagni, 1900
86°34
Peary, 1827
Parry, 1827
Franz Josef Land
Duke of Abruzzi's Return
Nansen
Kara Sea
Nova Zemlya
Taimir Peninsula
Nordenskjold
Nansen Sea
New Siberia
De Long Is.
Wrangel I.
Siberia
Finland
Sweden
Iceland
Spitzbergen
Greenland Sea
Barents Sea
Greenland
Baffin Land
Parry Is.
Melville Sound
Prince Albert Land
King Haakon VII Land
Victoria Land
Wollaston Land
Boothia Pen. of Magnetic Pole
Bathurst Land
Ellesmere Land
Grinnell Land
Grant Land
Greely
Lady Franklin Bay
Hayes Peninsula
Crocker Land
Seen by Peary 1906
Keenan Land
Bering Strait
McClure Strait
Alaska
Dominion of Canada
Arctic Circle
Longitude
East from Greenwich
West from Greenwich
Wilhams Engraving Co., N.Y.

aration for the journey, and the party of seven white men, seventeen Eskimos, 133 dogs, and nineteen sledges carrying the supplies, left cape Columbia on March 1, 1909. The rough journey over the ice was accomplished in a little more than a month, Peary reaching the Pole on April 6. The return journey began on the following day, and cape Columbia was reached on April 23.

As a triumph of man's genius over the forces of nature, the discovery of the North Pole may be considered as the crowning achievement in geographical dis-

Copyright by R. E. Peary.
Copyright by B. B. Hampton.

View of the locality of the North Pole. From a photograph by Commander R. E. Peary.

covery. As an event of scientific value or of practical utility the results obtained are a poor return for the toil and sacrifice of the last three centuries. It has been learned that the region surrounding the North Pole consists of an ocean a mile or more in depth, which is covered during the greater part of the year with a continuous mass of floating ice. Much of the ice is smooth and affords an ideal track for the Eskimo dogs, but in many places the explorers found it so rough that the stout sledges were broken or damaged. Here and there the ice was found entirely

in ridges and hummocks, and in other places leads or open stretches of water, interrupted the floes, and the travelers were obliged to wait for new ice to form before continuing their journey. No road can possibly be established through these regions which can be of any value for travel or commerce. The only time when the journey can be made is in the spring before the breaking up of the ice. The location of the Pole itself is not a matter of absolute certainty. The usual methods of determining latitude consist in taking the elevation of the sun or of some star near the Pole star. The first method is attended by great difficulty on account of the low position of the sun in the heavens and the refractive power of the atmosphere. The long polar day of six months begins on the 25th of March, after which time there are no stars visible on which an observation could be made. The fact that the location of the Pole must be determined on a field of floating ice renders such a determination of no permanent value.

South Polar Exploration. — In 1821, Captain Nathaniel Palmer touched the shore of the Antarctic continent, but like Columbus he did not know what he had discovered. In 1840, Captain Wilkes of the American Navy proved the fact of the discovery, announcing it in the following words: "It affords me much gratification to report that we have discovered a large body of land within the Antarctic circle, which I have named the Antarctic continent." Many attempts to discover the South Pole followed Captain Wilkes's announcement. In recent times the more notable South Polar expeditions have been led by Lieutenant Shackleton and Captain Scott of the British Royal Navy and Captain Roald Amundsen of Denmark. Lieutenant Shackleton in 1909 attained a point 111 miles from the pole, but was forced to turn back on account of the furious snow storms which prevailed. Captain Scott died on the passage across the plateau which surrounds the South Pole. Captain Amundsen was the first to attain the pole, December 16, 1911. It has been established that the South Polar region is a vast plateau rising 10,500 feet above sea level, and traversed by mountain ranges, which rise 5,000 feet higher. The entire region is buried beneath an ice cap of enormous thickness, and is subject to almost perpetual blizzards. As no land in the South Polar continent is ever free from ice there can be no land animals; but marine animals and sea birds are found. A few hardy lichens and mosses were the only plants discovered.

Surface. — North America has two extensive highland regions. The loftier and broader one, known as the **Western highlands**, traverses the entire continent and joins the Andes system of South America. The lower and older system, the **Appalachian**, follows the trend of the Atlantic coast, extending from Labrador nearly to the gulf of Mexico. The Western highlands consist of several parallel ranges enclosing a plateau region, which is low and narrow in the north, but gradually widens and rises until it reaches an elevation of 5,000 feet and a width of 1,000 miles (in latitude 40 degrees). South of this latitude the mountain ranges converge, and the plateau becomes

low and narrow as it approaches Central America. The eastern and broader range is the Rocky mountains, while on the west are the Sierra Nevada, the Cascade, and Coast ranges. East of the Rocky mountains is a broad plateau which slopes eastward, descending to the flood plain of the Mississippi river.

Many of the high peaks of the Western highlands are from two to nearly four miles above the sea level. Highest of all is mount McKinley in Alaska, and nearly as high are the neighboring peaks of mount Logan and mount St. Elias. Several peaks in Mexico exceed three miles in height, while a dozen or more in the United States are only a little less (see APPENDIX, *page* v). The plateau surface lying between the ranges is rough and mountainous, and many parts of it have been worn into deep canyons by the swift streams. It consists of the Columbia plateau in the north, the Colorado plateau in the south, and the Great Basin lying between them. There are many volcanoes long extinct which have covered thousands of square miles of this region with a great depth of lava. The summit of the western highland region is a long ridge, known as the **Great Divide**, and it may be traced through the whole extent of the continent.

A view of Mount Shasta, an extinct volcano.

The **Eastern**, or **Appalachian, highlands** consist of several ranges and plateaus and a series of deep depressions, including the Lake Champlain valley, the Hudson valley, the Cumberland valley, the Shenandoah valley in Virginia, and the valley of the Tennessee river. These mountains are far older than the Western highlands, and through the action of the elements for many ages they have been deeply worn down and covered with soil. A heavy growth of

QUESTIONS ON THE RELIEF MAP. — (1) Trace on the relief map the watershed in the western part of the continent. (2) What river systems drain the eastern slope? The western slope? (3) Trace the Appalachian watershed. Compare its direction with the watershed in Labrador. With that in the Western highlands. (4) Trace the watershed crossing the central part of the continent. (5) Compare the eastern half of the continent with the western half. What differences do you notice in elevation? In the numbers of rivers and lakes? (6) Find and name six peninsulas on the coast of North America.

forest clothes most of them nearly to the summits. Their highest peaks are little more than a mile above the sea — an elevation which we may compare with that of the plateaus of the Western system. Mount Mitchell, in North Carolina, and mount Washington, in New Hampshire, are the highest peaks. East of the Appalachian system is a level strip of country called the **Atlantic slope**, or **plain**. It is crossed by many streams, which have their sources in the Appalachian system, and which are valuable for navigation and water power. This region is one of the richest and most prosperous parts of the con-

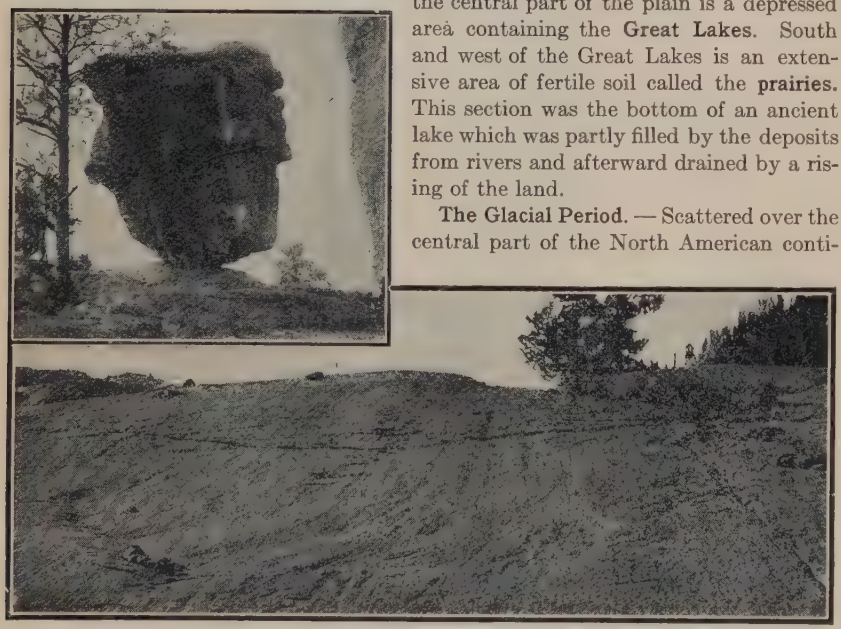
The Appalachian highlands, showing valley at the foot of mount Mansfield, the highest point in Vermont.

tinent. The soil is fertile, and there are many large cities, engaged in manufacturing and commerce.

West of the Appalachians is the Allegheny plateau, which unites this system with the **Great Central plain**. This broad continental lowland lies between the two mountain systems, extending from the gulf of Mexico to the Arctic ocean. It contains the great farming and grazing sections of the continent. It is divided into a northern and a southern slope by a low but broad elevation in the central part, called the **Height of Land**. This forms the watershed between

the Arctic ocean and the gulf of Mexico. A little west of the Great Lakes this swell of land divides, one branch sweeping to the northwest, and the other, called the Laurentian plateau, to the southeast across the peninsula of Labrador

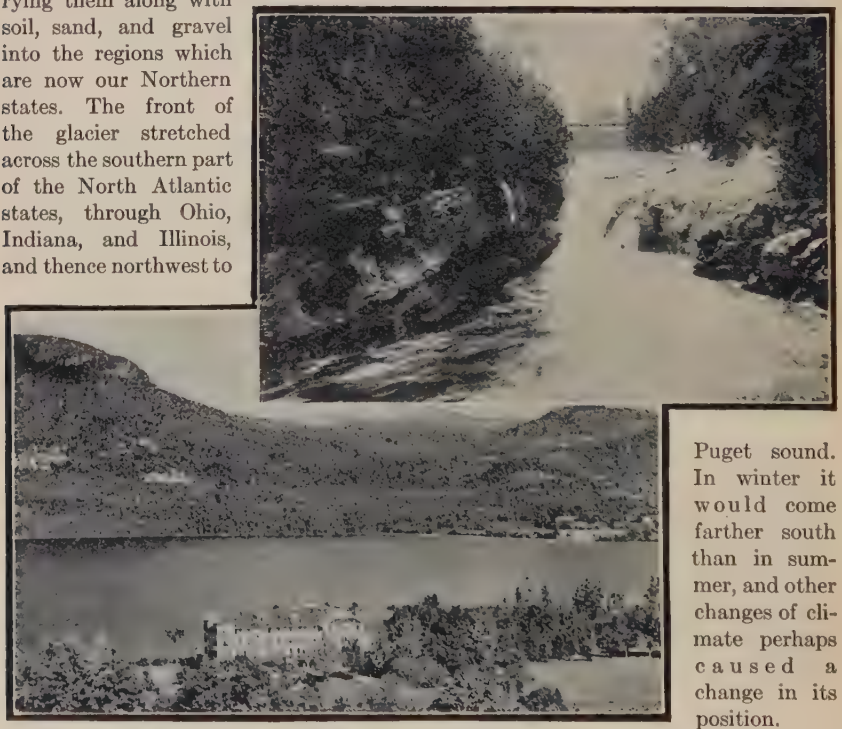
The western part of the Great Central plain increases gradually in elevation to 5,000 feet, a point which marks the beginning of the Rocky mountains. This section, from 2,000 to 5,000 feet above sea level, is called the **Great Plains.** In the central part of the plain is a depressed area containing the **Great Lakes.** South and west of the Great Lakes is an extensive area of fertile soil called the **prairies.** This section was the bottom of an ancient lake which was partly filled by the deposits from rivers and afterward drained by a rising of the land.



1. A rocking boulder; 2. Rocks showing scratches made by glaciers.

The Glacial Period. — Scattered over the central part of the North American continent are many fresh water **lakes.** Thousands of these are found in the northern part of the United States and in southern Canada. There are also numerous **hills** built up of soil, stones, and masses of detached rock. In some parts of the United States the land is thickly strewn with huge rounded boulders, often weighing hundreds of tons. In some cases these have been left on the flat surface of the bed rock, boulders so nicely balanced that they may be swayed back and forth by the pressure of the hand. South of the glacial hills and boulders the soil is fine and very deep and rich. This condition of the surface is a result of the action of glaciers in past ages, and has been made clear by the study of the work that is now being done by glaciers in different parts of the world.

The entire northern part of North America was once covered with an ice sheet, or glacier, which was so thick as to reach to the tops of the highest mountains. The climate of this part of the continent must at that time have been as cold as Greenland is to-day. We do not know how the cold was caused, but it may have been due to temporary elevation of the land. From year to year the glacier moved southward, gouging out valleys, breaking off rocks among the mountains, and carrying them along with soil, sand, and gravel into the regions which are now our Northern states. The front of the glacier stretched across the southern part of the North Atlantic states, through Ohio, Indiana, and Illinois, and thence northwest to Puget sound. In winter it would come farther south than in summer, and other changes of climate perhaps caused a change in its position.



Glacial lake and waterfall in New England.

After a lapse of many centuries, how many no one knows, the climate of the continent became warmer, and the ice sheet gradually melted away. The work that it had done during all that long period is still apparent to the careful observer. Where the ice melted we find **glacial hills** of various forms. In the eastern part of the country, clay, coarse gravel, and boulders occur abundantly; in some cases the rock was entirely stripped of its covering of soil and left in poor condition for the farmer. Farther west the glacier's burden consisted mainly of fine soil, which was spread over the surface, vastly increasing the fertility of the land. The morainic hills were often formed

directly across the course of streams, damming the water and forming lakes. New outlets to these lakes were thus formed at higher levels, and the waters, in seeking a new path to the sea, were often led down steep inclines or over rocky ledges, thus forming the **rapids** and **waterfalls** which are utilized to drive the wheels of factories and mills. The gorges and hollows scooped out along the glacier's path remained filled with water when the ice melted, forming the innumerable lakes of Canada and of the northern part of the United States. We see, therefore, that the ancient glacier not only diversified the surface of the land with hills, lakes, and rushing streams, but also rendered much practical service to the farmer and the manufacturer. The enormous crops of grass and grain of the prairies are in part due to the deposits left by the glaciers. Near the waterfalls and rapids, which date from glacial age, have grown up hundreds of prosperous manufacturing towns.

Rivers and Drainage. — The continent contains seven important river systems, the chief of which lie in the Great Central plain. The **Mississippi-Missouri** system, which drains the southern part of the plain, is the greatest of these. The combined length of the two rivers is 4,200 miles, making the longest continuous stream in the world. These rivers with their tributaries afford about 14,000 miles of navigable water ways, which have been of the greatest value in developing the production and trade of the country.

The most striking feature of the Mississippi basin is its level character. At the junction of the two great rivers the plain is less than 400 feet above sea level, and the average fall of the navigable rivers forming this grand water way is not more than six inches to the mile.

Second in importance to the Mississippi system is that of the Great Lakes and the **St. Lawrence river**. This system has been so improved by canal construction that ocean-going steamers may now pass from the gulf of St. Lawrence to the upper end of lake Superior, nearly half way across the continent. The divide between the St. Lawrence and the Mississippi river systems is so low that a **ship canal** has been constructed from Chicago, connecting lake Michigan with the tributaries of the Mississippi, thus forming a continuous route for large steamers through the most productive part of the country.

Of the other river systems of the continent, three, the **Saskatchewan-Nelson**, the **Mackenzie**, and the **Yukon**, lie in a region so cold that they are of little value for transportation except in midsummer. On the western coast the mouths of the **Fraser**, the **Columbia**, and the **Sacramento** form estuaries which are excellent

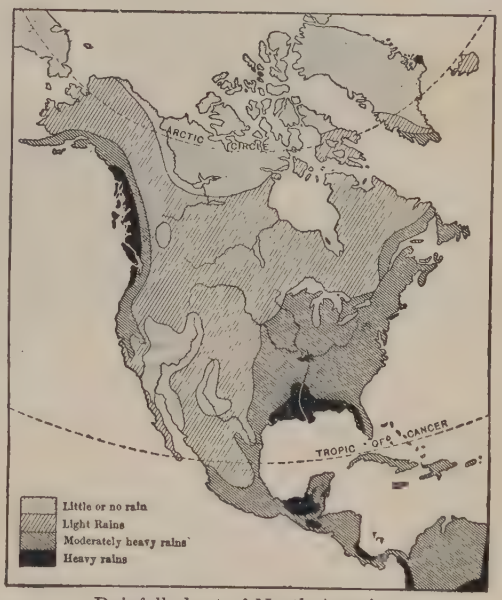
harbors. The numerous short streams of the Atlantic plain are of the greatest value to local trade, and the mouths of the Hudson, the Delaware, the Susquehanna, and the James are the most useful harbors on the coast.

Climate. — North America may be divided according to temperature into three **climatic belts**: the hot or tropical belt in the south, the temperate belt in the central part, and the cold belt in the north. The southern third of the continent and portions of the eastern and western coasts receive the greatest amount of **rain.**

Water gap on the Delaware river.

That part of the interior which lies between the ranges of the western mountain system receives the least amount of rain, because it is beyond the reach of both the eastern and western winds. The climate of the **Central plain** is subject to extremes of temperature. The winters increase in length and severity from south to north, and the summers are correspondingly hot and short. **The western** coast north of the tropical belt has a climate less marked by extremes of heat and moisture than any other part of the continent, because it is swept by the warm, moist winds from the Pacific ocean. In winter this belt of **westerly winds** moves as far south as the gulf of California; but in summer when it moves northward, the southern part

of California is rainless, while the northern part of the coast as far as the Alaska peninsula receives abundance of rain. The eastern coast is subject to rapid changes of temperature on account of the **variable winds.** The southern and southeastern winds are the warm rain-bringing winds, while those from the northwest and northeast bring snow and cold weather. A sudden change in the wind frequently causes the thermometer to show a variation of from 30 to 40 degrees within twenty-four hours.



Rainfall chart of North America.

The explanation of this rapid change in the direction of the winds is the fact that the storms, originating in the tropical regions southeast of the continent, pass from the gulf of Mexico northeastward in great whirls, or cyclones. The distance from the storm center to the circumference is often hundreds of miles. When the storm center passes over any region there will of course be a change in the wind's direction since it blows in opposite directions on opposite sides of the center (see *pages* 43–45).

The southern part of the continent has a **wet** and a **dry season.** The climax of wet weather occurs in the early spring, and the rains continue until the beginning of autumn. This region, being within the belt of trade winds, has the heaviest rainfall on the eastern slopes of the mountains, while the country west of the mountains is dry. The southwestern part of the United States, being cut off from both the trade winds and the westerlies, is practically a desert.

Plants and Animals. — In the north, from the region of Hudson bay to the Arctic ocean, plant life is not abundant. The ground in winter freezes to a great depth, and during the short summer it

thaws only at the surface. This allows the **hardy plants** only, such as grasses, mosses, and a few dwarf willows and birches, to take

Remains of the oldest human habitations in America, at Black Falls, Arizona.

root and grow. A few **flowering plants**, among which are the poppy and several species of berries, also thrive, coming up almost out of the snow.

The animals of these cold regions are only such as can thrive upon the scanty vegetation or upon other animals. The polar bear feeds upon the fish and seals which he can catch along the shore. The seal and the walrus also live upon fish. The reindeer, or caribou, is a species of migratory deer common to the northern regions. The musk-ox, numerous fur-bearing animals, and also hares and dogs

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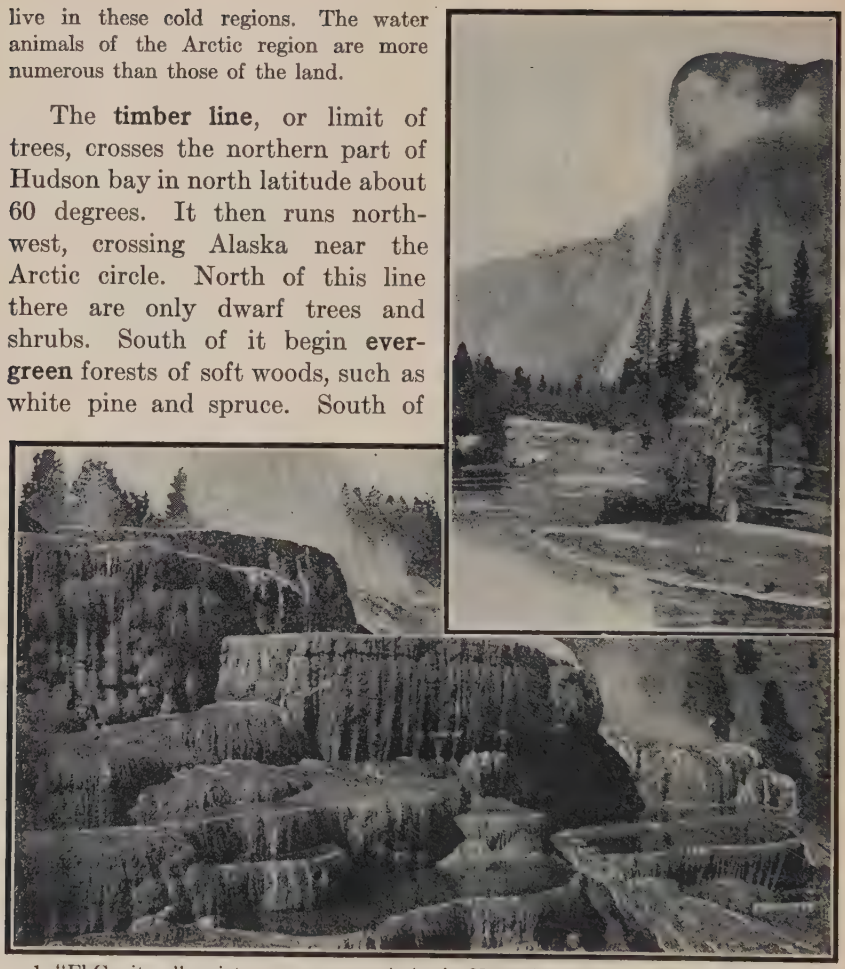
QUESTIONS ON THE POLITICAL MAP. — (1) Between what parallels does this continent lie? Find the distance between these parallels in miles. How many degrees of longitude between the island of Newfoundland and the island of Vancouver? By means of the Table, APPENDIX, *page* iv, measure the greatest width of North America. (2) What three oceans partly surround North America? What continent northwest? Southeast? What is the distance from Bering strait to the isthmus of Panama? What large island northeast of this continent? What group southeast? What two islands on the western coast? What group east of cape Hatteras? (3) What sea and gulf south of North America? What large bay in the northern part? Name a sea on the northwestern coast. What strait separates North America from Asia? From Greenland? What bodies of water does each of these straits connect? (4) Which of the three coasts of North America is the longest? Which is the most irregular? On which coast do you find the greatest number of cities? (5) What lakes between Canada and the United States? Name the three largest countries of North America in order of size. What mountains in the western part of the continent? Which ranges are near the Pacific ocean. What mountains near the Atlantic coast? What mountains in Mexico? Name the four highest mountain peaks in North America (see APPENDIX, *page* vi).

POLITICAL MAP OF
NORTH AMERICA
Scale of Miles
0 100 200 400 600 800 1000
Largest City in each Country.... New York
Cities next in importance ..... Chicago
Capitals ..... ☆
Longitude 100° West from 90° Greenwich
120° 110° 80° 70°
Williams Engraving Co., N.Y.
ARCTIC OCEAN
PACIFIC OCEAN
ATLANTIC OCEAN
GULF OF MEXICO
CARIBBEAN SEA
GREENLAND
ICELAND
ASIA
ALASKA
DOMINION OF CANADA
HUDSON BAY
UNITED STATES
MEXICO
SOUTH AMERICA
Cape Barrow
Cape Bathurst
Cape York
Cape Farewell
Cape Chidley
Hudson Strait
Davis Strait
Baffin Bay
Behring Strait
Behring Sea
Mt. McKinley
Mt. St. Elias
Yukon R.
Great Bear Lake
Great Slave Lake
Athabaska L.
Arctic Circle
Dawson
Sitka
Queen Charlotte Islands
Vancouver
Juan de Fuca Strait
Edmonton
Calgary
Regina
Winnipeg
Lake Winnipeg
Hudson Bay
James Bay
Labrador Pen.
Labrador Plateau
Newfoundland
St. John's
Cape Race
Cape Breton
Halifax
Nova Scotia Pen.
Cape Sable
Quebec
Montreal
Ottawa
Toronto
Portland
Boston
Cape Cod
New York
Buffalo
Cleveland
Detroit
Chicago
Milwaukee
Minneapolis
St. Paul
Omaha
Denver
Pikes Peak
Black Hills
Rocky Mts.
Sierra Nevada Mts.
Cascade Mts.
Mt. Hood
Mt. Shasta
Mt. Whitney
Lassen Peak
Cape Mendocino
San Francisco
Los Angeles
San Diego
Great Basin
Great Salt Lake
Colorado R.
Missouri R.
Mississippi R.
Ohio R.
Philadelphia
Baltimore
Washington
Chesapeake Bay
Norfolk
Cape Hatteras
Cape Fear
Charleston
Atlanta
Cincinnati
Louisville
St. Louis
Kansas City
Ozark Mts.
Appalachian Mts.
Wilmington
Jacksonville
Mobile
New Orleans
Galveston
San Antonio
El Paso
Juarez
Red R.
Rio Grande
Bermuda Islands
Cape Canaveral
Bahama Islands
Nassau
Havana
Cape Sable
Florida
Key West
Tropic of Cancer
Cape San Lucas
Monterey
Durango
San Luis Potosi
Guanajuato
Guadalajara
Tampico
Vera Cruz
Mexico
Vol. Popocatepetl
Acapulco
Sierra Madre
Sierra Nevada
C. Catoche
Yucatan Pen.
Yucatan Channel
Belize
British Honduras
Jamaica
Kingston
Haiti
Port au Prince
Santo Domingo
Porto Rico
San Juan
Cape Gracias a Dios
Honduras
Tegucigalpa
Nicaragua
L. Nicaragua
Managua
Costa Rica
San Jose
Colon
Isthmus of Panama
Gulf of Darien
Panama
Gulf of Panama
New Guatemala
San Salvador
Salvador
Guatemala
Queen Maud Land
Graham Land
Victoria Land
Ellesmere Land
Grinnell Land
Grant Land
North Devon
Baffin Land
Melville Pen.
Boothia Felix
Prince of Wales Land
Parry Archipelago
Wrangel Land
Spitzbergen
C. Bismarck
C. Breusing
C. Breusing
Frederikshaab
Godthaven
Julianehaab
Sukkertoppen
Holsteinborg
Egedesminde
Upernivik
Jakobshavn
Disco
Godhavn
Fiskernaes
Ivigtut
Frederikshaab
Julianehaab
Cape Farewell
Reindeer L.
Great Bear L.
Great Slave L.
Athabaska L.
Lake Winnipeg
Lake Superior
Lake Michigan
Lake Huron
Lake Erie
Lake Ontario
Lake Michigan
Lake Superior
Lake Winnipeg
Lake Athabaska
Lake Great Bear
Lake Great Slave
Lake Reindeer
Lake Nicaragua
Lake Managua
Lake Ontario
Lake Erie
Lake Huron
Lake Michigan
Lake Superior
Lake Winnipeg
Lake Athabaska
Lake Great Bear
Lake Great Slave
Lake Reindeer
Lake Nicaragua
Lake Managua
Lake Ontario
Lake Erie
Lake Huron
Lake Michigan
Lake Superior
Lake Winnipeg
Lake Athabaska
Lake Great Bear
Lake Great Slave
Lake Reindeer
Lake Nicaragua
Lake Managua

live in these cold regions. The water animals of the Arctic region are more numerous than those of the land.

The **timber line**, or limit of trees, crosses the northern part of Hudson bay in north latitude about 60 degrees. It then runs northwest, crossing Alaska near the Arctic circle. North of this line there are only dwarf trees and shrubs. South of it begin **evergreen** forests of soft woods, such as white pine and spruce. South of



1. "El Capitan," a picturesque mountain in the Yosemite valley. 2. "Pulpit Terraces," formed by the deposit from hot springs in Yellowstone park.

the evergreen forest belt are forests of deciduous trees. Still farther south are the cypress, cottonwood, and the yellow or hard pine.

The slopes of the Rocky mountains as far south as the fortieth degree are clothed with forest growth. The dry regions of the western highlands have plants and animals adapted to that climate. Sage brush, mesquite, the century plant,

and various species of the cactus are some of the plants. Bunch grass, a plant peculiar to the dry regions, furnished pasture for the vast herds of buffalo which once roamed over the plains. Some of the **animals** still found in the Rocky mountain region are the grizzly bear, the cougar, or mountain lion, the big-horn sheep, the elk, and the antelope. The coyote, or prairie wolf, the jack-rabbit, and the prairie dog are peculiar to the dry plains.

The tropical lands of North America have the dense forests and varied animal life usual in such regions. Among the trees are valuable **cabinet woods**, such as rosewood and mahogany. **Tropical fruits** are common. The orange, banana, pineapple, and many others grow wild. The cocoanut palm supplies food and drink, and the rubber tree a valuable article of commerce.

Political Divisions and Government. — The **United States** and **Mexico** are the most important independent republics. **Central America** is divided into six small republics. The **Dominion of Canada** and **Newfoundland** are colonies of Great Britain, but are independent in all matters that concern themselves. **Greenland** and **Iceland** are colonies of Denmark. **Alaska** and **Porto Rico** belong to the United States and are governed by officers appointed by the President of the United States; **Cuba** and **Haiti** are governed independently as republics.

QUESTIONS AND TOPICS. — (1) Comparative size of North America. Length and breadth. Distance from Europe. (2) Shape of the continent. Which coast is most irregular? Where do you find the greatest number of good harbors? Which part of the coast is most regular? Name some of the inlets on the eastern coast. On the western coast. (3) What were the two objects of the North Polar exploration? Who first found a Northwest Passage? What Americans have sought the North Pole? By whom and when was it discovered? Trace his route. What is said of the value of Polar exploration? By what method is the location of the Pole determined? Give an account of Shackleton's explorations. Compare the North Polar with the South Polar regions. (4) Name the two highland regions of the United States. Describe the direction and extent of each. What are the chief ranges of the Western highlands? Of the Eastern highlands? Name some of the highest peaks of each system. What ranges are found between the ranges of the Appalachians? What natural division east of the Appalachians? (5) Location of the Great Central plain. Into what slopes is it divided? Describe the Height of Land. Describe the Great Plains. What are the prairies? (6) What evidence of glaciers is found in North America? Describe the extent and effects of the great glacier. (7) Describe the chief river system of North America. What system is next in importance? Describe the rivers of the Atlantic plain. (8) Three climatic belts. Account for the dry climate of the southwestern part of the United States. (9) Plants and animals. (10) Political divisions.

CHAPTER II

THE UNITED STATES

Answer the questions on *pages* 26–27, 48–49

Area and Extent. — Among the countries of the world the United States is exceeded in size only by Siberia, the Chinese Republic, Canada, and Brazil; but as each of these countries has large tracts of land unfit for human habitation, we may say that the United States as a *habitable* country is the largest. Its average **extent** from north to south is about twenty-two degrees of latitude, or 1,200 miles; from east to west the average breadth is about 2,500 miles, thus giving an approximate **area** of three million square miles, or more exactly, according to the latest surveys, 3,026,789.

In advantages of **location, climate, surface**, and **natural wealth** the United States is favored above most countries. Lying in the midst of the temperate zone, no part of it suffers greatly from either extreme heat or extreme cold; the rainfall is nowhere excessive, and those parts which are arid from lack of rain are rapidly being made available for agriculture by processes of **irrigation**. Neither has our country any deserts or mountain chains which interfere seriously with travel and transportation of goods from one section to another. The natural resources of the United States are at present more productive and its manufactures greater than those of any other country, and the wide range of latitude and elevation, and the variety of soil and climate, which the country possesses, insure a corresponding range and variety in products. Many plants common to both the temperate and tropical regions flourish, thus enabling the country to supply the greater part of its own needs without the aid of foreign countries.

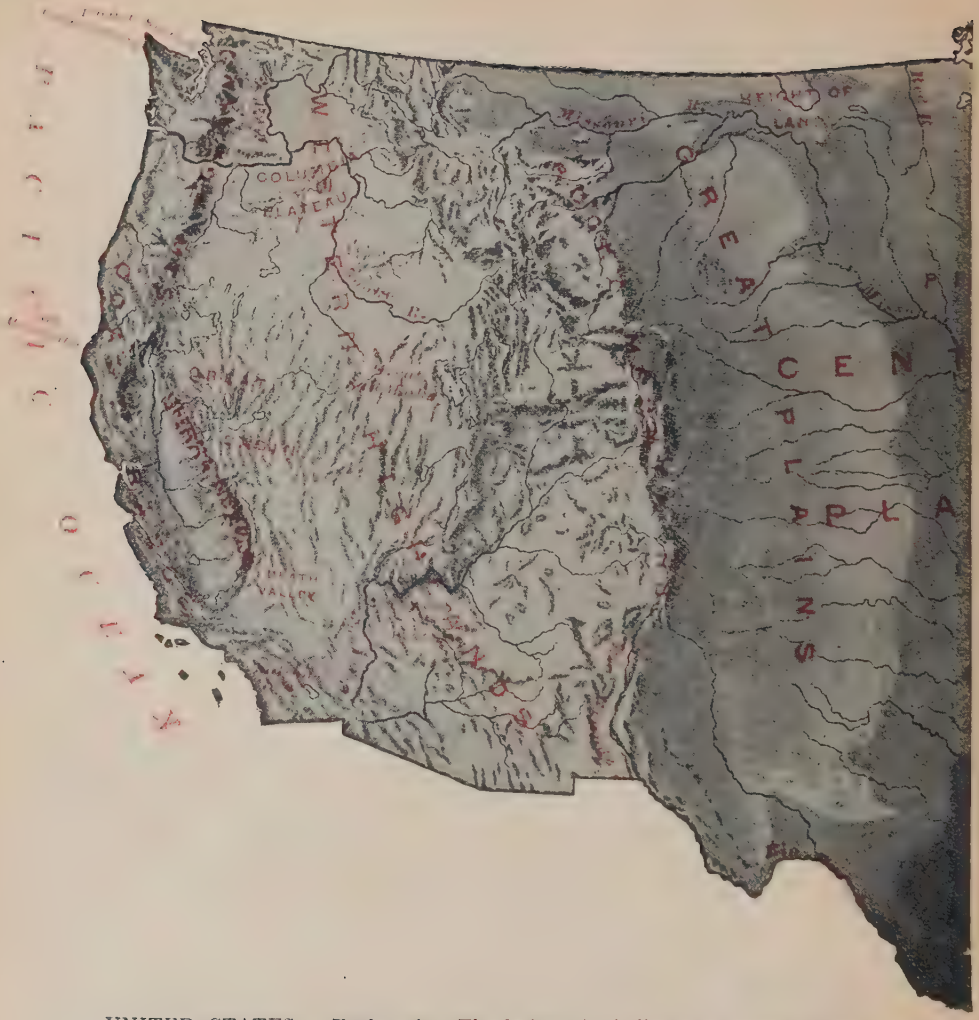
Natural Divisions. — As the United States stretches entirely across the continent, it has four well-marked physical divisions: the **Atlantic Coast plain**, the **Appalachian highlands**, the **Central plain**, and the **Western highlands**. We may subdivide each of these into smaller sections according to the minuteness and care with which we wish to study the surface, climate, productions, or other features. Each of these smaller sections has its own characteristic **resources** in climate, soil, and other natural wealth and in its advan-

tages for agriculture, grazing, mining, and trade. Each has its own great **cities**, which owe their importance to these resources; each has its own **manufacturing industries,** arising from the convenient location of raw materials and means of transportation; and each has its own domestic and foreign **trade**, depending upon its surplus products and its need of other products which it cannot produce.

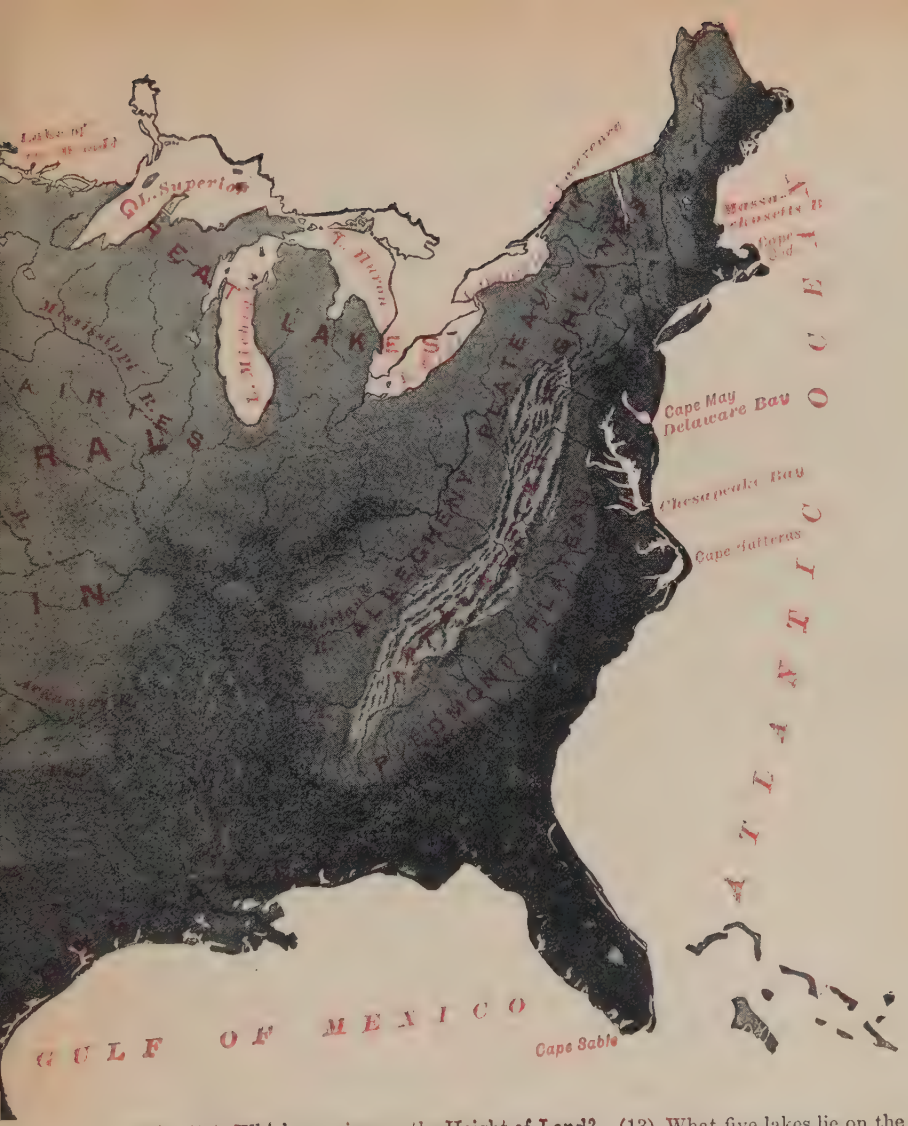
The Atlantic Coast Plain. — This section is a strip of lowland bordering the Atlantic ocean and extending from New York to Florida. Its width in the north is only a few miles, but it gradually increases to 200 miles in Georgia. The surface is everywhere nearly level, sloping gently to the southeast. The rivers are sluggish and rise and fall with the ocean tides through nearly the entire width of the plain, giving to this region the name **Tidewater**. The outer edge of the coast plain is bordered by sandy beaches, spits, and banks which afford many attractive **seaside resorts**. The enclosed bays, inlets, and estuaries are often deep enough for good harbors, and contain valuable beds of oysters and clams. There is also excellent fishing and hunting along the coast. The **soil** of the coast plain is composed of sand, clay, gravel, and fertile deposit carried down by the rivers. Some of the plain is barren, but the greater part is excellent for farming, gardening, and fruit-growing.

The Atlantic and Gulf plains as well as coastal plains in general have been formed by a gradual rising of the ocean bottom, thus converting into dry land the sand, mud, and coarser materials which during many ages have washed down into the sea. The beaches and sand bars off the coast are caused by the movements of the **tides**, which arrest the currents of the rivers, causing them to drop their burdens of silt; the tides also transport sand and mud from one part of the coast to another, arranging it in many peculiar forms.

The **climate** of the Coast plain is mild and moist, owing to the prevailing winds which come from over the ocean. The southern part has a heavy **rainfall** during the summer; in the north the rainfall is less, but is evenly distributed throughout the year. During the winter the cold north and northwest winds from the interior of the continent prevail in the northern part of the plain, often extending as far south as Florida, bringing frost and snow and doing great damage to the orange and other delicate fruit trees. Twice in recent years have the orange groves of Florida been killed by the frost.



UNITED STATES. — Explanation: The darkest tint indicates an average elevation of 500 feet or less; the second tint includes elevations up to 2,000 feet; the third tint, elevations from 2,000 to 5,000 feet; the lightest tints indicate the highland systems of the United States. (1) What natural divisions are included in the Central plain? (2) What divisions lie east of the Appalachian highlands? (3) What divisions are included in the Western highlands? (4) Trace the Great Divide in the Western highlands. (5) What three river systems drain its western slope? (6) What river system drains its eastern slope? (7) In what part of the Western highlands are Death Valley and the Salton sea? (8) Trace the outline of the lowland plains. (9) Name as many of the rivers as you can that cross these plains. (10) Which of these rise in the Appalachian highlands? (11) Which of them have their sources in the Western high-



lands? (12) Which one rises on the Height of Land? (13) What five lakes lie on the northern border of the United States? What river is the outlet of these lakes? (14) Trace the outline of the Great Plains. (15) What river systems are partly in these plains? (16) What part of the area of the United States is embraced in the Western highlands? (17) What two plateau regions do you find here? (18) What is the chief tributary of the Columbia river? (19) What indicates the dry climate of the Western highlands? (20) Why have the low plateaus of this region less streams than the high plateaus? (21) Judging from the number and size of the streams, what part of the United States has the most rainfall? (Compare this map with the rainfall chart on *page* 32.)

Industries and Products of the Coast Plain. — This region has long been noted for its extensive **forests** of hard pine, yielding lumber and naval stores, and for its **rice** and **cotton** fields. A more recent industry, which has attained enormous proportions, is the raising of early **fruits and vegetables** for the markets of the larger northern cities. This industry now prevails all the way from Long Island to Florida, the earliest products coming from the states farthest south. As the states of the Coast plain extend through a wide range of latitude, and as large crops are now grown under glass, this section, the "Nation's Garden Patch" as it is called, supplies the eastern half of the country with a continuous succession of fresh garden products.

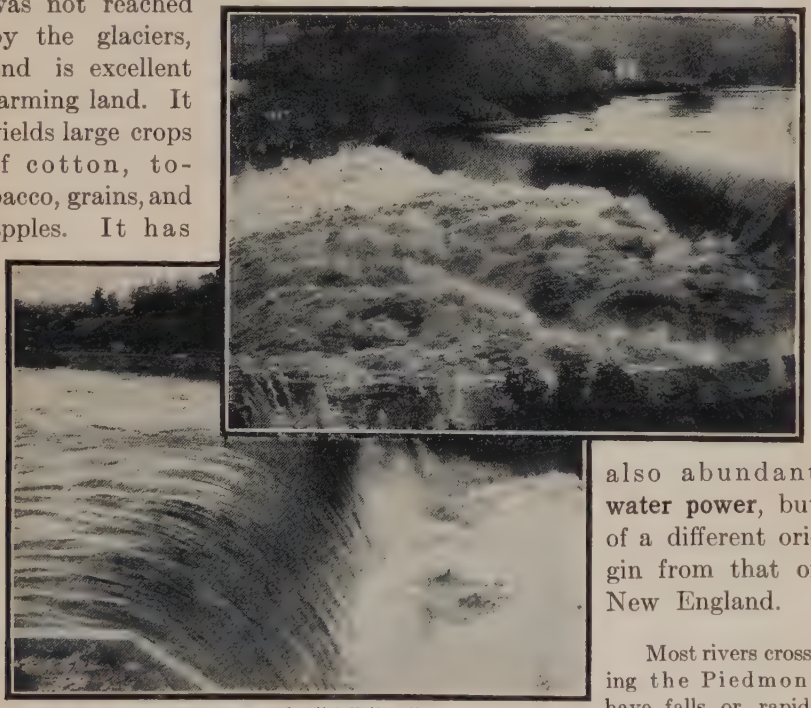
A hard pine forest on the coast plain.

The Gulf Coast Plain is a continuation of the Atlantic plain, extending from Florida to Texas. The temperature is semi-tropical, and the rainfall is much heavier than on the Atlantic coast. With the **alluvial plains**, or **bottom** lands, along the Mississippi and its tributaries, it composes the richest part of the **Cotton Belt**; rice and sugar cane flourish in the swamps and lowlands of the coast; farther inland are extensive **forests** of hard pine and cypress. As in the Atlantic division of the plain, **gardening** is of the first importance, and the Gulf states supply the cities of the Mississippi valley with melons, oranges, pineapples, and a great variety of other early fruits and vegetables.

The Piedmont Belt. — Bordering the Coastal plain on the west is a rolling region of higher land underlaid by strong rocks of granite and gneiss. This plateau region appears to be the worndown remains of an ancient mountain range which once extended from Maine to Alabama. The northern half is occupied by the New England

states. This part was swept by **glaciers** during the great "ice age" (see *page* 16).

The southern half borders the eastern ranges of the Appalachian mountains and is more properly called the **Piedmont** (*foot of the mountain*). This section, extending from New York to Alabama, was not reached by the glaciers, and is excellent farming land. It yields large crops of cotton, tobacco, grains, and apples. It has also abundant **water power**, but of a different origin from that of New England.



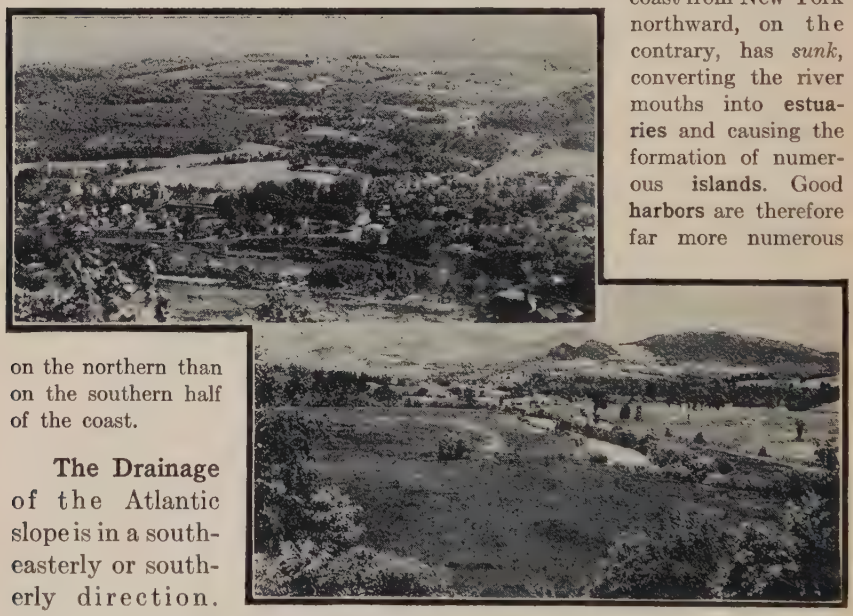
Streams at the "fall line."

Most rivers crossing the Piedmont have falls or rapids where they descend from its hard rocks to the softer rocks of the coast plain. The harder rocks resist the action of the water, while the shales and gravels are rapidly worn away. The line where these two sections join is known as the **fall line**. Below this line the rivers are deep and navigable. The fall line of rivers is a good location for cities, both on account of the water power and the advantages for shipping. Philadelphia, Trenton, Baltimore, Washington, Richmond, Raleigh, Columbia, Augusta, Macon, and Montgomery are some of the cities built at or near the fall line.

The **climate** of the Piedmont region, owing to its elevation and

greater distance from the sea, is cooler and more healthful than that of the Coast plain. It is a favorite resort in summer for the people of the populous coast towns.

Coast Line. — There is an important difference between the northern and southern halves of the Atlantic coast line. It has been mentioned that the Coast plain was formed by a rising of the ocean bottom. This fact has made the inlets and mouths of the rivers shallow, and caused them to fill with sand and silt; the coast from New York northward, on the contrary, has *sunk*, converting the river mouths into **estuaries** and causing the formation of numerous **islands**. Good **harbors** are therefore far more numerous on the northern than on the southern half of the coast.



Scenes in the valley of the Connecticut river.

The Drainage of the Atlantic slope is in a southeasterly or southerly direction. The rivers are short, ranging from two to three hundred miles in length, navigable in their lower courses, and most of them supplying **water power** at one or more points. Nearly all of them take their rise in the eastern range of the Appalachians; but the **Hudson**, the **Susquehanna**, the **Potomac**, and the **James** rise in the mountain and plateau regions farther west, and breaking through the eastern ranges, have cut out channels to the Atlantic ocean. It was these river valleys that formed the earliest highways across the mountains to the prairies and valleys of the

Central plain. In later times the wagon road and the railroad took the place of the trails followed by the early settlers.

The rivers of the Atlantic slope in general follow narrow valleys, separated by low ridges; their tributaries are few and small, and there are no "systems," such as we find in the Great Central plain. The fact that there is easy communication by both land and water between all parts of the Atlantic slope was important in our early history, as it helped to unite the thirteen colonies so widely scattered along the coast. The influence of the natural features of the country on its early settlements and development is a subject of great interest. The excellent harbors and navigable rivers along the coast afforded every advantage for planting colonies and for opening up the country. Had the Appalachian mountains been as lofty and impassable as the Sierras, the early colonies might have been confined to the coast; but being crossed by numerous river valleys and passes, these mountains were easily passed, and the white races came gradually to occupy the entire country from ocean to ocean.

The Appalachian Highlands. — The Appalachian mountains proper consist of a system of mountain groups and ranges extending from New Hampshire to Alabama. In the north they include the **Green mountains**, the **Berkshire hills**, the **Adirondacks**, the **Catskills**, and the **Highlands** of the Hudson. The leading ranges of the central and southern part of the system are the **Blue Ridge**, the **Allegheny**, and the **Cumberland**. Each of these divisions is made up of numerous irregular ridges, from 1,000 to 4,000 feet in height, and many isolated peaks reaching a much greater elevation (APPENDIX, *page* v); the highest point in the system is mount Mitchell in North Carolina. These ridges enclose numerous fertile plains and valleys, the most extensive and valuable being known as the **Great Valley**. This may be traced through the whole extent of the system, and includes the Hudson valley in New York State, the Kittatinny and Cumberland in New Jersey and Pennsylvania, the valley of the Shenandoah in Virginia, and that of the Tennessee river in eastern Tennessee. These valleys are the richest farming regions east of the Mississippi basin.

The Appalachian region is a rich storehouse of **mineral wealth**. Its deposits of coal and iron ore have made it the chief iron and steel-producing section of the world. Nearly all the hard coal of the country is obtained from the ranges in eastern Pennsylvania. The most valuable deposits of iron ore of the entire section are found in Alabama and in the low mountains along the southern border of the Great

Lakes. Scarcely less valuable than the coal and iron are the wells of petroleum and natural gas which are found near the coal fields. Granite, marble, slate, and salt are the leading minerals of this section, but various others are found in smaller quantities.

The **forests** of the Appalachian region add greatly to its wealth. The ridges and slopes are forest clad, and the mountain peaks are wooded to their tops. It is proof of the great age of these mountains that they are covered with a depth of soil sufficient to support trees of the largest size.

Rainfall chart of the United States.

The forests of this region have been greatly depleted to obtain lumber, bark for tanning hides, and wood pulp for the paper-mills. Forest fires have also been very destructive. In the northern part, the pine, spruce, and hemlock are the leading varieties; in the southern section, hard woods, such as oak, hickory, black walnut, prevail. The cottonwood and cypress are also abundant.

The Allegheny Plateau. — This is the most western section of the Appalachian highland system. It extends in a broad belt from the Catskills in central New York to the Gulf plain in Alabama.

It varies from 2,000 to 4,000 feet in height and has been deeply cut, or "dissected," by the numerous streams which cross it. Parts of the Kanawha canyon in West Virginia are 1,500 feet in depth, rivaling some of the great canyons of the West. In the middle and northern parts of the plateau the dissected ridges rise to the height of mountains; the southern third, called from the bordering mountain range the **Cumberland** plateau, is remarkable for its heavy forest growth and for the vast deposits of bituminous coal which underlie it. In fact, nearly every part of the plateau is supplied

A view of the Allegheny plateau in West Virginia.

with both coal and petroleum; these largely determine the industries and compensate for the lack of fertility in the soil.

The Central Plain. — This is the most important physical division of the United States and comprises nearly half of its area. Its prevailing industries are agricultural, but it is the source of varied forms of wealth. We may divide it into several sections, differing in climate and industries. The **surface** is generally level, the only **highlands** worthy of note being the **Ozark** plateau in Missouri and Arkansas. Other slight elevations are the **Black Hills** and the low mountains bordering the Great Lakes. This last section is noted for its vast deposits of iron, copper, and salt, and for its extensive

forests of pine, now rapidly becoming exhausted. Between the Lake region and the Ohio river, and reaching from the Allegheny plateau to the dry plains of the West, are the **Prairies.** These were vast stretches of level, treeless, grassy plains, having a deep and rich soil washed from the moraines of the ancient glacier (*page* 16). The soil throughout the southern belt of prairie land is fine, compact, and free from stones; that of the northern belt is composed of coarse gravel and clay, and sometimes contains rocks and boulders. The climate of the prairie region is sufficiently moist for farm crops and has cold winters and hot summers. It is an ideal farming country and the chief source of breadstuffs, meat, and dairy products, not

A farm on the Great Plains near Garden City, Kansas, showing a field of alfalfa.

only for our own country, but also for the countries of western Europe. The business of the towns and cities is mainly the receiving, curing, packing, and transportation of meat. Besides this there are extensive manufacturing industries that supply the wants of a farming population.

The Great Plains. — West of the prairies the surface gradually rises and the climate becomes increasingly dry. At last a section is reached where, owing to the lack of moisture, grazing is a more profitable occupation than farming. This section, known as the **Great Plains**, extends from Canada to the gulf of Mexico. It is too far inland to be reached by the moist winds from the south and southeast, while the winds from the west, dried by passing over the mountains, afford little rain.

The **surface** of the Great Plains varies in height from 2,000 feet on the eastern border to 5,000 or more at the foot of the mountains. There are no forests and the **vegetation** is mainly native grasses, which are adapted to a dry climate; these grasses take deep root and afford nutriment for stock when other vegetation fails. The soil of the Great Plains becomes wonderfully fertile when watered, and many sections, especially in Colorado and Texas, have been changed into productive farms by means of water obtained from the artesian wells and streams.

Rivers and Lakes of the Central Plain. — Two of the grandest systems of water ways in the world are found in the Central plain — the Mississippi and that of the Great Lakes and the St. Lawrence. The **Mississippi** system includes nearly all the important

Rough weather on lake Michigan.

streams. These are extremely valuable for **transportation** and are navigated by thousands of steamboats and craft of every sort carrying freight and passengers. The navigation of the **Great Lakes** and the **St. Lawrence** river, though shared with Canada, is scarcely less valuable to the country than that of the Mississippi system. Lake Michigan is connected by canal with the Illinois river and lake Erie with the Ohio, thus allowing steamers to pass from the Mississippi to the Great Lakes and through the St. Lawrence river to the ocean.

The **Great Lakes** occupy depressions in the Central plain, the bottoms of which are many feet below the sea level. Lake Superior, the largest fresh water lake

on the globe, is about two thirds the size of New York State. It occupies a rocky basin 1,000 feet deep and 600 feet above the sea level at its surface. It is twenty feet above lake Huron and its outlet, the St. Mary's river, is therefore not navigable. The **St. Mary's**, or "Soo," canal has been built around the rapids at this point. Lake Michigan and lake Huron are about equal in size, and are also very deep. They are connected with each other and with lake Erie by navigable passages. Lake Erie has a depth that barely exceeds 200 feet, while it is nearly 600 feet above the sea level. It is connected with lake Ontario, the lowest and smallest of these lakes, by the **Niagara river**, which descends about 325 feet in its course of 35 miles. Half of this descent is accomplished by a single leap at the **falls of Niagara**. It is possible that, at some time in the remote future, lake Erie may be converted into dry land through the deepening of the Niagara gorge and the wearing down of the cataract. The **Welland canal** carries vessels around Niagara falls. From lake Ontario the St. Lawrence river completes the water way to the sea. The St. Lawrence carries an enormous volume of water, surpassed only by the Amazon and the Congo; it has, nevertheless, dangerous rapids above Montreal, which are passed by the **La Chine canal**.

Great Falls of the Yellowstone, Montana, 308 feet high.

The Western Highlands. — These include about one third of the whole country. The Rocky Mountain system, comprising a dozen or more distinct ranges, bounds them with a steep wall on the eastern side, while on the west are the still steeper and loftier Sierras. Between these two systems are the high plateaus of the Colorado and Columbia rivers and the dry plains once known as the Great American desert. The Western highlands have about twice the elevation of the Appalachians, while their rugged heights and narrow valleys show that they are of far more recent origin. Swift streams have worn deep gorges in the mountain sides and through the plateaus, but they have not formed deltas and flood plains, as have the rivers in the older Appalachians.

Here and there among the ranges of the Rocky mountains are high valleys, or basins, which have been filled with rich soil from the bordering mountain ridges.

These regions, covered with grass and evergreens, have received the name of parks, and are very profitable for farming and stock-raising. The highest peaks among the Rockies, **Long's peak**, **Pike's peak**, and **mount Massive**, are in Colorado. This and the neighboring states afford some of the grandest mountain scenery in the world. Here is the great **Continental Divide** passing northward through Wyoming and forming the boundary between Montana and Idaho. On one side are the headwaters of the Mississippi system; on the other, those of the Rio Grande, Colorado, and Columbia. Everywhere the rocks exhibit the greatest variety of curiously sculptured forms, which resemble the towers and battlements of castles or the spires and domes of cathedrals. Mountain peaks loom up like sentinels guarding the mysteries of the region. The lofty terraced walls of river canyons exhibit beautiful coloring in layers of brown, red, and yellow. The clear dry atmosphere makes remote objects seem near and gives to the landscape the vividness and color of a painting.

The Colorado canyon.

West of the Rockies lies the **Colorado plateau**. It has an average height of 6,000 feet and is deeply furrowed by the **canyons** of the Colorado river and its branches. The higher parts of the plateau are forested, but in general the scene is desert and desolate. Some of the rugged mountains are volcanic. **Mount San Francisco**, the highest peak in Arizona, is a volcanic cone. The Colorado plateau was for many centuries the home of warlike tribes of **Indians**, who made their dwellings on the flat tops (*mesas*) of mountains or in caves hollowed out beneath the overhanging cliffs.

These are perhaps the oldest remains of human habitation of the continent.

The **Columbia plateau** comprises the parts of Idaho, Oregon, and Washington drained by the Columbia river and its branches. It has been built up by successive **lava** flows from volcanoes long extinct. The Snake river has cut a remarkable canyon with walls 4,000 feet high. The decayed lava forms a rich soil, and though sage brush and bunch grass are the chief forms of vegetation, there is rain enough to grow good crops of grain and fruit without irrigation.

Between the two plateaus just described, bounded on the east by the Wasatch range and on the west by the Sierras, is the depressed region called the **Great Basin.** It is the driest portion of the continent, and much of it is a true desert. There is little plant life without artificial watering. From the bordering rim of mountains a few scanty streams flow inland into **salt lakes**, from which the water is rapidly evaporated. This section is traversed by a few independent mountain ranges, the highest of which have trees upon their summits. The only other forms of vegetation found here are the common sage brush and the thorny yuccas and cacti; but there are no grasses for pasturage.

The chief inhabitants of the Great Basin are the **Mormons**, who were driven from state to state on account of their practice of polygamy, and finally settled in Utah when it was a territory of Mexico. By persevering industry and the aid of irrigation they have made the desert "blossom as the rose." The mining industries of the Great Basin support a few towns, among which are **Reno**, **Virginia City**, and the modern **Bullfrog** and **Goldfield**. This section is, however, being rapidly developed by means of irrigation and through methods of dry farming.

The Pacific Ranges. — These comprise two parallel systems, the first consisting of the Sierra Nevada and Cascade ranges, and the second of the lower Coast ranges. Between these lie the valleys of California and those of the Willamette river and Puget sound. These mountains contain many lofty volcanic peaks. **Mount Rainier** near Tacoma, **mount Hood** near Portland, and **mount Whitney** in the northern part of California are among the highest. The mountain slopes are furrowed by numerous river canyons, and the sides of the loftier peaks bear snowfields and **glaciers**. The western slopes are covered with the most gigantic growth of forest trees to be found

in the world. The **Coast ranges** face the ocean in a solid unbroken wall, in some places rising directly out of the water. There is therefore no coast plain, as on the Atlantic side of the continent.

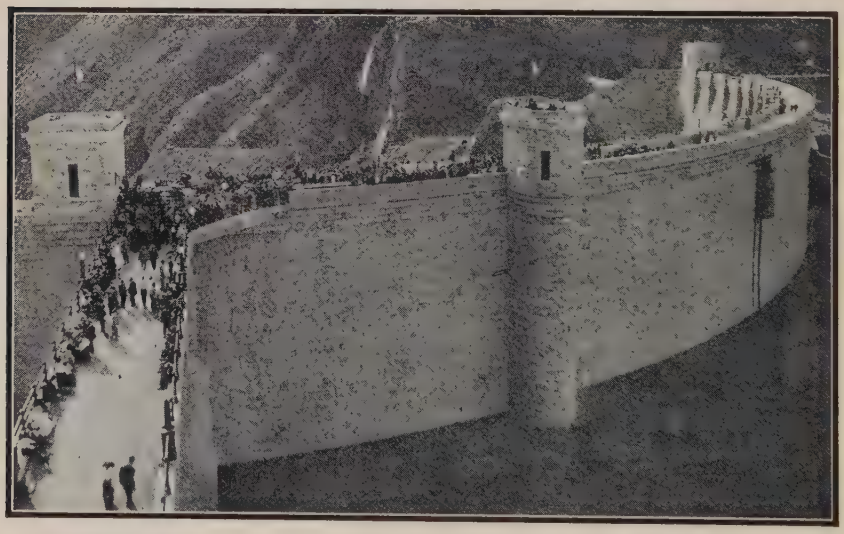
Climate of the Pacific Highland Region. — The climate of this section is remarkable for its variable temperature and prevailing dryness; the northwestern coast is however one of the rainiest regions in the country. The two most important influences determining climate in this region are **elevation** and the **direction of the winds**. The western winds are the prevailing winds over the entire region. At the beginning of summer, however, these winds die away south of the southern boundary of Oregon, and for five months the skies are cloudless and the air is dry. The moist winds from the gulf of Mexico are arrested by the eastern wall of the Rocky mountains. North of the parallel of 42 degrees the west winds from the Pacific blow throughout the year, and the parts of the Western states that lie north of this line and west of the Cascade mountains receive a heavy rainfall.

View of mount Rainier from Seattle.

The climate of the regions lying within the Pacific mountain wall is largely the result of **elevation**. The high plateaus and mountainous sections receive a moderate amount of rain, but the lower plains scarcely any. The western winds are cooled and have the greater part of the moisture wrung out of them in passing over the Pacific ranges. On descending to the plains they become **drying winds**; that is, they become heated and able to take up more moisture. Afterward, passing on over the higher plateaus and mountains farther east, they are again cooled, and are able to yield a considerable amount of rain.

Drainage. — On account of the scanty rainfall the western third of the United States has few large navigable rivers and no extensive systems like that of the Central plain. The **Columbia**, the **Colorado**, and the **Sacramento** systems are the most important. The Columbia

has its sources in Canada, but its largest tributaries, the **Clark**, the **Spokane**, and the **Snake**, rise in the Great Divide. The mouth of the Columbia and Puget sound have been deepened by the sinking of the coast and form two of the best harbors on the Pacific. The **Sacramento** and the **San Joaquin** drain the valley of California. These rivers form the only highway south of the Columbia valley from the coast to the interior, and have contributed greatly to build up the city of San Francisco.

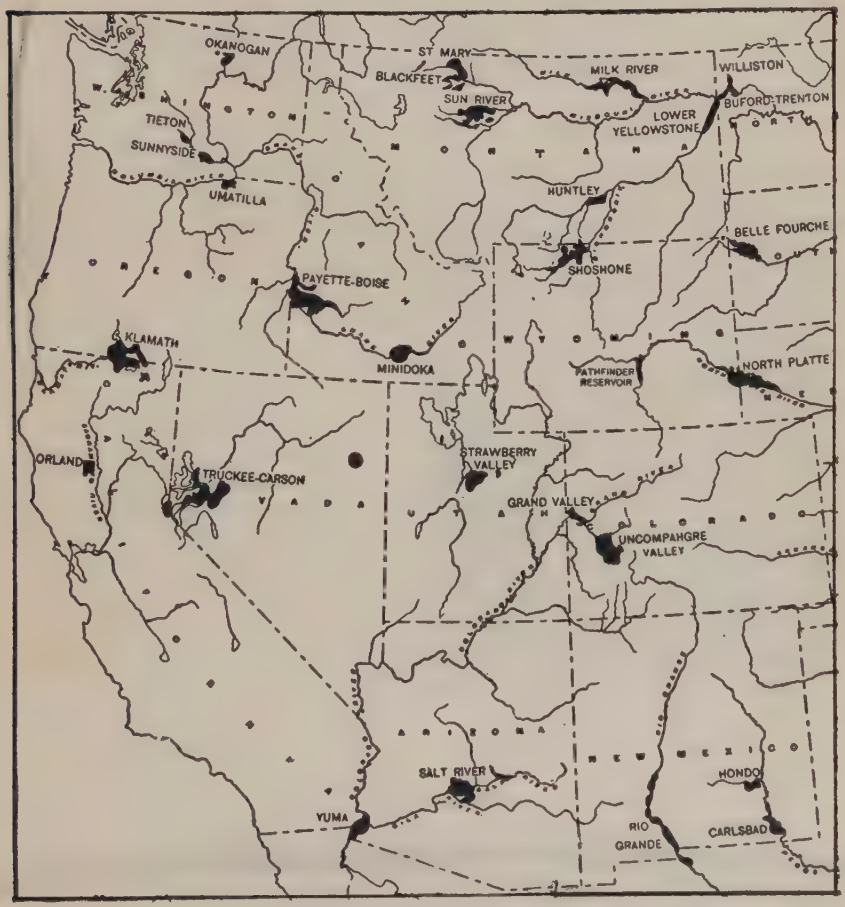


Roosevelt irrigation dam across Salt river canyon, Arizona. This dam is 280 feet high and 1,080 feet long; it stores sufficient water to irrigate about 200,000 acres.

Irrigation. — As the average rainfall in the Western highlands is too little for the needs of **agriculture**, it is necessary to resort to artificial watering, or irrigation. Water is obtained from the streams that flow down the mountain regions, where the rainfall is much greater than on the lowlands. Where the streams supply water throughout the year, they are tapped in their upper courses and the water is led into **canals**, which are built with a gradual descent, leading the water to the places where it is needed. From these main canals smaller ones lead out to the different farms, and still smaller

ditches distribute a supply of water to the orchards and growing crops.

In case the streams in the arid regions are small or dry up during

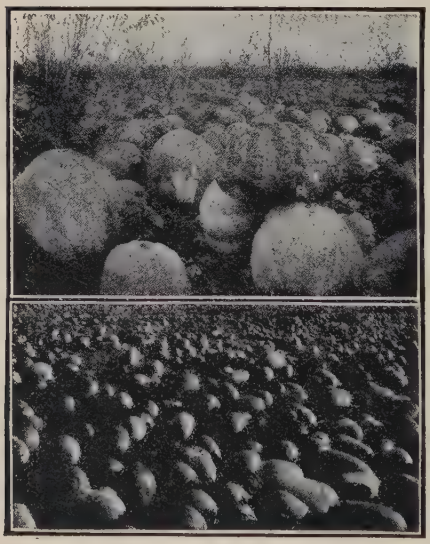


The principal irrigation projects in the Western states.

the summer, it is necessary to construct **dams** and **reservoirs** to store up the water, which is abundant during the season of rain or when the snow melts. Such dams have been constructed by the United

States Reclamation Service at the various points shown on the map on the preceding page. The purchaser of a farm pays an additional sum per acre for the privilege of using the irrigation water. In many cases private companies have constructed reservoirs and make a business of supplying the farmers with irrigation water. In some sections of the southwest an abundant supply of water is obtained from artesian wells.

Results of Irrigation. — The soil of arid lands in the western states is rich in plant food, and when irrigated it becomes wonderfully fertile. Land that was once destitute of all vegetation except a few straggling plants is transformed into wheat fields, meadows, and productive orchards. New cities spring up, railroads are built, and the desert is changed into a busy and prosperous community. Irrigation increases the value of the land from a few dollars an acre to several hundred and to even higher values. It enables the farmer to raise two crops a year instead of one, and where the soil is adapted to fruit-growing the profits are very large. Methods of irrigation are especially advantageous to the fruit-growing industry, as water in proper amounts can be supplied just at the right time, while the dry atmosphere is unfavorable to the generation of insects which attack the fruit.



How pumpkins and watermelons grow on irrigated land in California.

The Weather Bureau. — The climate of the United States has long been a subject of careful study. The government has established a department called the Weather Bureau, for recording exact observations of the daily temperature and pressure, the direction and velocity of the winds, the condition of the sky, and of the amount of rain and snow. These observations are made at stations estab-

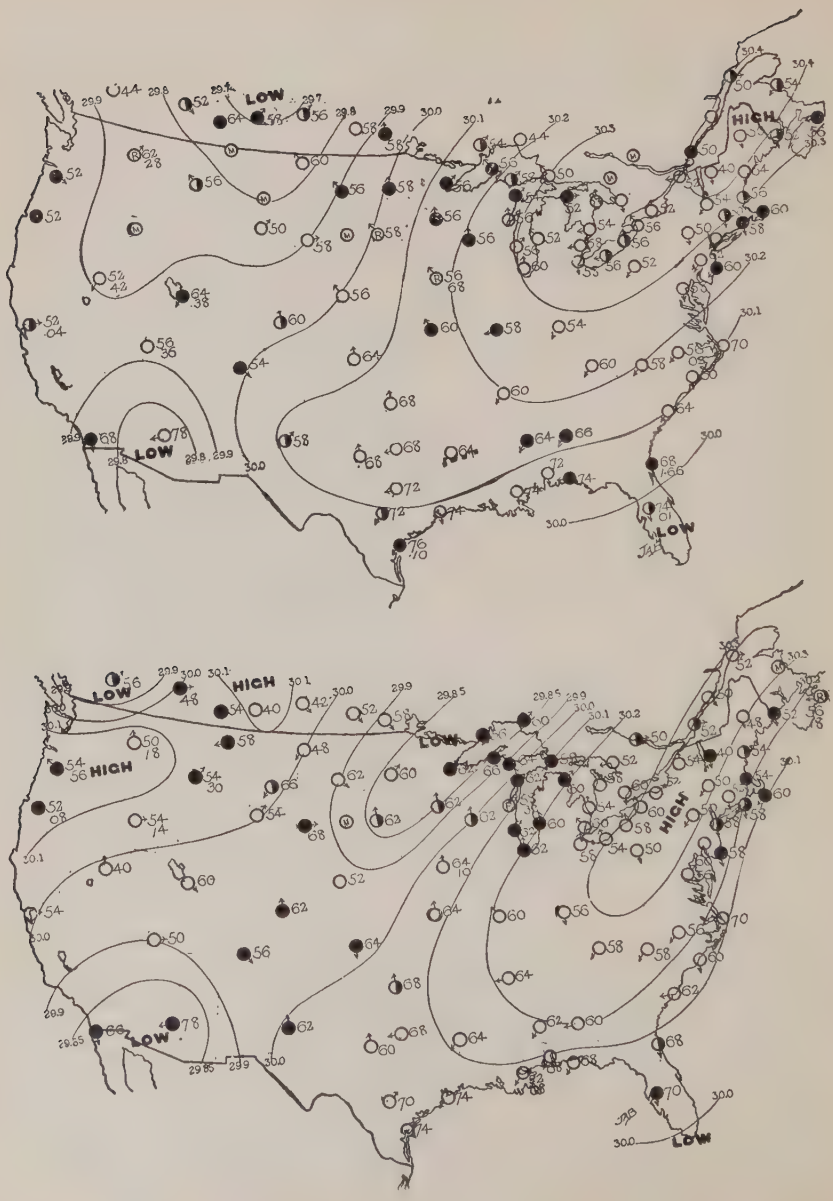
lished in various parts of the country, and are communicated each morning and evening by telegraph to a number of central stations, where weather maps are drawn and signals displayed.

Each station is equipped with a set of accurately constructed **instruments**. The most important of these are thermometers for recording temperature, barometers for measuring the pressure of the atmosphere, hygrometers for determining the amount of moisture, or humidity, present in the air, anemometers for measuring the velocity of the wind, and a rain gauge which measures the amount of precipitation. These are set up at the top of a building or other elevated position, and are connected with other ingenious instruments kept indoors which record the reading of the outside instruments.

Weather Maps. By a careful study of weather maps, such as those shown on the next page, the trained official is able to make **predictions** of the weather from twenty-four to thirty-six hours in advance. According to well-known laws concerning atmospheric movements, the **winds** blow from regions of high pressure toward regions of low pressure, moving in great whirls about the low-pressure centers. There is thus a great circular mass of air moving about a low-pressure center that is several miles in depth and often hundreds of miles in diameter. As the air approaches the low-pressure center it ascends, expanding and cooling as it rises. This condenses the moisture and sends it to the earth in the form of rain or snow. The higher the temperature, the greater the amount of moisture that the air will hold. Hence, as vast amounts of moisture are forced into the low-pressure centers by the spiral movement of the wind, these places are subject to heavy rainfall and often to violent and destructive storms, the velocity of the wind depending upon the difference in pressure between the storm center and the surrounding high-pressure regions. A difference of an inch or more in the reading of the mercurial barometer is enough to foretell a violent **tornado**. When accompanied by fine snow the storm is called a **blizzard**. The direction of the **cyclonic whirl** in the northern hemisphere is in a direction opposite to the movement of the hands of a clock. The storm center is continually moving onward, generally taking twenty-four hours in passing a given point. The paths followed by storm centers in the United States are well known, and therefore their progress as well as their character can be predicted with considerable accuracy.

The **predictions** of the Weather Bureau are of the utmost value to the sailor and to the farmer. It enables the former to have his ship in readiness to meet the storm, and the latter to take measures to protect his crops when in danger from rain or frost. Fires are often built in orchards of delicate fruits to protect the buds from an on-coming frost, thus saving the crop.

Government. — In form the United States is a **federal republic**. It consists of 48 states, each of which has its own local government, united under the general government at Washington. This general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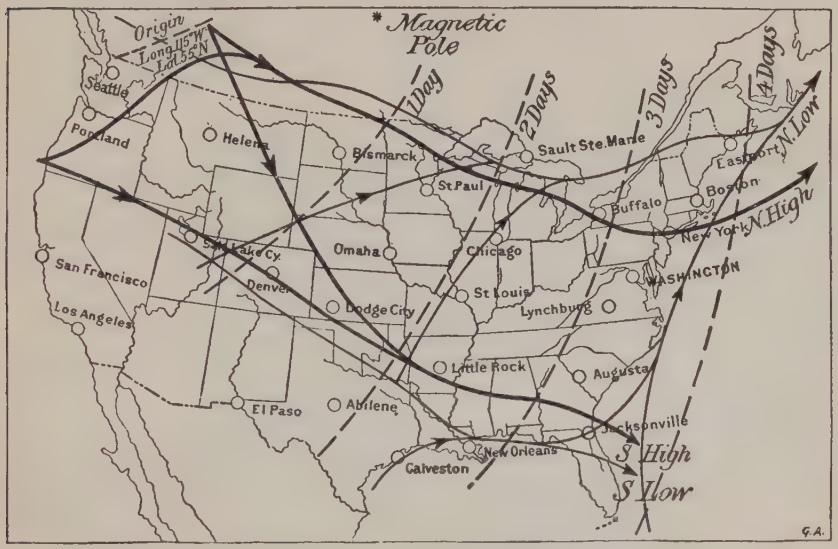
government was created by the adoption of the Constitution of the United States in 1788. According to the Constitution the powers of government are vested in three departments: the **Legislative**, the **Executive**, and the **Judicial**.



The heavy lines show the usual path of storms in the United States, and the dotted lines crossing them show the average daily progress of the storm center. Notice that the storms originating in the northwest cross the country in a southeasterly direction, and that those originating in the tropics advance north and northeast.

The **Legislative power** is exercised by the **Congress of the United States**, which consists of the **Senate** and a **House of Representatives**. The Senate is composed of two members from each state, and the Senators hold office for six years. The

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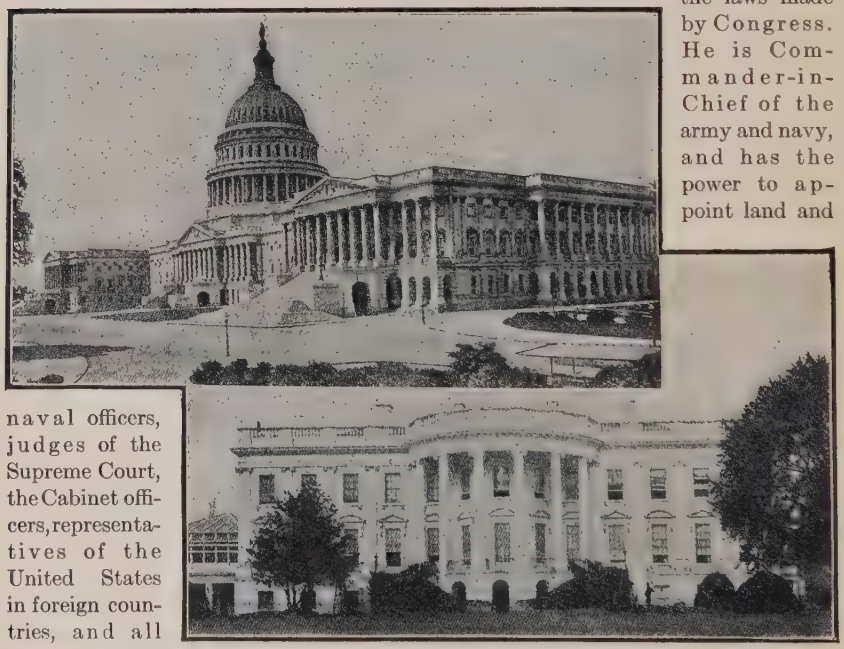
EXPLANATION OF THE WEATHER MAPS. — The circles indicate the location of signal stations and the figures near them the temperature in degrees Fahrenheit. A shaded circle signifies "cloudy," half shaded, "partly cloudy." "R" stands for rain, "S," for snow, and "M" means "no report." Arrows fly with the wind. The lines are isobars, connecting points having the same barometric pressure, which is written in inches at the end of each line. Notice that the winds from regions of *high* pressure blow toward regions of *low* pressure. The two maps given represent conditions on successive days, Nov. 16 and 17, 1910. Notice that the "low" in the northwest has moved southeastward, and that a new low-pressure area has developed near Puget sound. Observe also the changes in the wind which accompany changes in pressure.

House, at this writing, is composed of 398 members, chosen by the people for two years. The members are apportioned among the states according to population, and the ratio of representation as well as the number of members to which each state is entitled are subject to change every ten years according to census returns. The powers exercised by Congress are expressly granted by the Constitution. Every bill introduced into Congress, before becoming a law must receive a majority vote of both houses, and must be signed by the President. In case the bill is vetoed by the President, it may be passed over his head by a two thirds vote by both houses.

The **Executive power** is vested in the President. It is his duty to carry out the laws made by Congress. He is Commander-in-Chief of the army and navy, and has the power to appoint land and naval officers, judges of the Supreme Court, the Cabinet officers, representatives of the United States in foreign countries, and all officers of the United States whose appointment is not otherwise provided for.



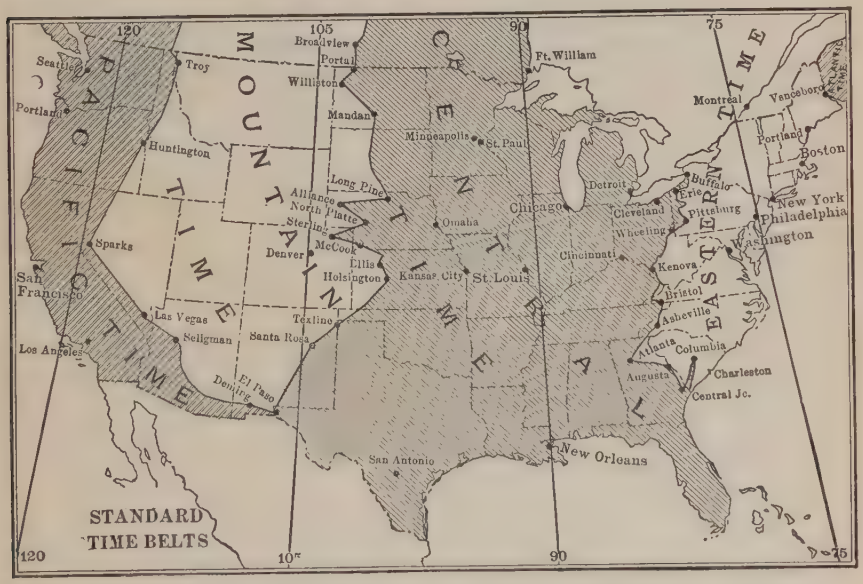
The Capitol and the White House.

The Cabinet consists at present of nine members. These are the Secretaries of State, Treasury, War, Navy, Interior, Agriculture, Commerce and Labor, the Attorney-General, and the Postmaster-General. The Diplomatic service of the United States is in the charge of the Secretary of State, subject to the President. Its officers are the ambassadors, foreign ministers, and consuls, who represent the United States among the various nations of the world.

The **Supreme Court** is composed of a **Chief Justice** and eight **Associate Judges.** Its lower branches are the circuit and district courts, which are distributed through-

out the country. The chief duty of the Supreme Court is to decide, when appealed to, whether the laws passed by Congress are in accordance with the Constitution. It has charge of numerous other cases also, as enumerated in the Constitution.

Each state has a **republican** form of government which resembles the general government. The states have full control within their own boundaries, and can make laws in regard to all matters which are not expressly delegated to the general government by the Constitution.



Local and Standard Time. — As the apparent motion of the sun is from east to west around the earth, all places lying east or west of each other have different **local**, or sun, time. When the sun is in the meridian of any place, it is 12 o'clock, noon, and at all places east of that line it will be later, and at all places west of it, earlier. **Day** and **night** are caused by the rotation of the earth, and the time required for one complete rotation is called a day. Since the sun appears to pass through 360 degrees of longitude in 24 hours, it will require one hour to pass through 15 degrees of longitude. Places therefore that are 15 degrees east or west of each other will

MAP STUDIES. — (1) What is the location of the United States in latitude and longitude? Using the scale of miles, find its greatest length and breadth. Between what two countries does the United States lie? What ocean east? West? What gulf south? Name two inlets on the eastern coast. Two on the western coast. (2) In what state does the Mississippi river rise? In which state is its mouth? Name its three leading tributaries. Give the source and direction of each of the following rivers and tell into what body of water each discharges: Colorado, Columbia, Rio Grande, Hudson, Yellowstone, St. Lawrence, Snake. Name the five Great Lakes. Where is

Great Salt lake? (3) Name the states which border the Atlantic ocean. What states border the gulf of Mexico? What three states on the Pacific coast? What states are bordered by the Great Lakes? Name the states on the northern boundary. What states on the east bank of the Mississippi? On the west bank? (4) Name ten important cities on the Atlantic coast and tell in what state each is located. What two large cities on lake Erie? What two on lake Michigan? What three large cities on the Pacific coast? Name five cities on the Mississippi river. (5) How could you go by water from Duluth to Boston? From Boston to New Orleans? From Chicago to Detroit?

have a difference of one hour in local time. This would make it necessary for anyone traveling east or west to change the time of his watch at every stopping-place.

Railroads running east and west across the country would find it very difficult to make connections, unless there were some agreement as to where changes in time should be made. The plan devised to overcome these difficulties and thus accommodate travelers is as follows: The United States has been divided into four time belts extending north and south, known as the **Eastern, Central, Mountain,** and **Pacific** belts. The **central meridians** of these belts are respectively those of 75, 90, 105, and 120 degrees West longitude. Each belt extends $7\frac{1}{2}$ degrees east and west of the central meridian. The train moving westward drops one hour in passing from one belt to the next; if moving eastward, it adds one hour to its time on entering each belt.

You will notice by referring to the accompanying map of time belts that their **boundaries** are very irregular. This is due to the fact that the time is changed, not on crossing the margin of the belt, but at the nearest important railway center. For example in passing from the Eastern to the Central belt the change of time is made at Buffalo. The map shows many other cities located near the margins of the time belts where the change of time is made. All railroads and other lines of transportation make use of this time system, which is known as **Standard,** or **Railroad,** time. Most places located at a distance from the central meridians follow their own local time.

A Journey across the United States. — On *pages* 48–49 of this book you will find a profile, or sectional, view of the United States taken along the forty-second parallel of latitude. It will be instructive for us to make an imaginary journey across the country from east to west, following the routes of travel that lie nearest this parallel. We notice by referring to the map that such a journey begins at **cape Cod,** the most eastern extremity of Massachusetts. We may make our start at Provincetown, a city founded 200 years ago, at the very extremity of the cape. Here the Pilgrims landed before going to Plymouth and here the famous **Mayflower Compact** was drawn up. We take a train on the New York, New Haven, and Hartford railroad. Our first stop will be Boston, after a ride of about 50 miles. We notice

Faneuil Hall, Boston, often called Cradle of Liberty on account of the popular meetings held there before the Revolution to protest against the oppressive laws of Great Britain.

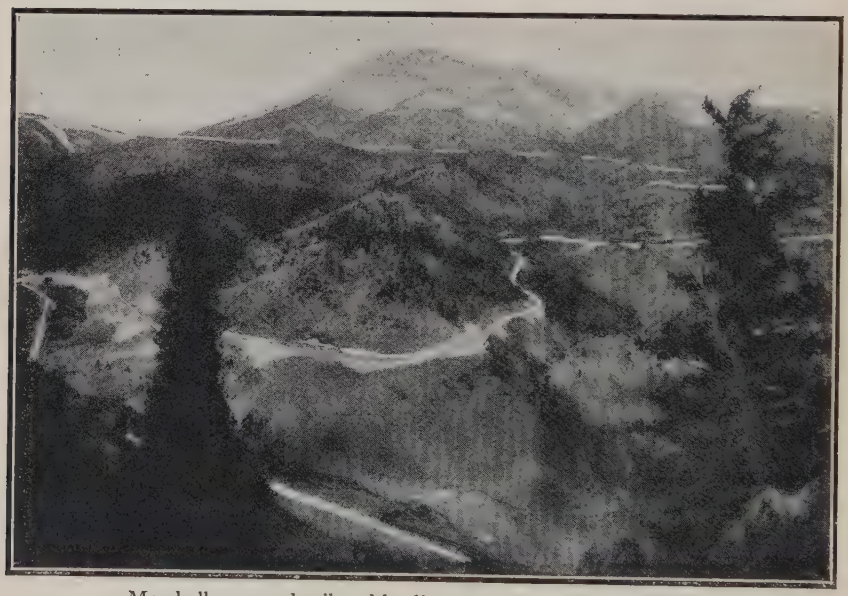
that the land along our route consists of vast areas of sand which has been thrown up here by the seas. Much of it is barren, but here and there are gardens and growing crops. We notice especially large fields of cranberries, a fruit which flourishes well here. This level, sandy tract is really a part of the Atlantic Coast plain. After leaving the peninsula we come to a different sort of country. It is rough and rocky and has low hills covered with a scrubby growth of forest, in which we see many evergreen trees such as pines, cedars, and hemlocks. This section is a part of the New England plateau, or Piedmont region, which, north of the cape Cod peninsula, extends all the way to the coast. On our way we pass through **Brockton**, the city of shoes, and **Quincy**, famous for its quarries of fine granite. Our train soon passes under ground and we are entering Boston, the metropolis of the New England states. On *page* 129 you will find a map showing the chief towns in the vicinity of Boston.

We will now take a train on another line of the same railroad which will carry us in a southwest direction. After passing through several flourishing towns we reach **Woonsocket**, a city of Rhode Island, situated exactly on the forty-second parallel, which forms the northern boundary of the state. A further ride of a few miles brings us into Connecticut. The country through which we are now passing is rough and covered with a thick growth of dwarf trees and shrubs. We see several fine manufacturing towns, but there are few cultivated farms until we approach the valley of the Connecticut river. During the summer we should find here large growing crops of tobacco and fields of fruits, vegetables, and other crops. At Hartford we enter the Union Station on tracks raised above the level of the street. We change now for a train on the Central New England railroad. Our train soon leaves the Connecticut valley behind and begins to climb a range of hills where we see numerous lakes and rapid streams. These hills are the outliers of the Berkshires. After passing through a number of busy manufacturing villages we descend into the valley of the Hudson river. Here we see a fine rolling country with excellent farms on every hand. The Hudson has cut this valley right across the Appalachian ranges, making a splendid highway from the central plain to the sea. We cross the Hudson by a steel bridge at Poughkeepsie and continue our journey over several low ranges of the Appalachians. We descend to the Allegheny plateau near the parallel, which marks the greater part of the southern boundary of the state of New York. At **Binghamton** we board a train on the main line of the Erie railroad, and we reach Buffalo after

A giant locomotive used on the New York Central system.

a ride of about six hours. This city lies in the Lake plain at the eastern end of lake Erie. Its location gives it remarkable advantages for transportation, and it is one of the busiest shipping points in the country. At **Buffalo** we pass from "Eastern Time" to "Central Time," and we must set our watches back one hour if we wish to have them agree with the "Railroad," or "Standard," time.

At Buffalo we will purchase tickets for Chicago over the Lake Shore railroad, a part of the New York Central system. Our train follows closely the southern shore of lake Erie. How level the country is! We pass through many towns where the air is murky with the smoke from iron furnaces. Ashtabula, Cleveland, Lorain,



Marshall pass and railroad leading over the continental divide.

Sandusky, and Toledo are some of them. All of these towns are extensively engaged in making iron and steel. After leaving **Toledo** we pass over the rolling prairie lands of northern Ohio and Indiana with many prosperous towns and well cultivated farms growing a variety of fruits. We now have reached **Chicago,** where "all trains stop," and take a train over the Union Pacific and Southern Pacific roads, which will carry us to San Francisco without further change.

After leaving Chicago we traverse the heart of the Prairie region for about 300 miles. We see many farms which grow heavy crops of hay, wheat, corn, and oats. This ride brings us to the city of **Rock Island** on the Mississippi river. Just north is the city of **Moline**, noted for plows and wagons. On the opposite side of the river is **Davenport,** the chief commercial city of Iowa. Many

railroads meet here. The river is crossed by two fine steel bridges which accommodate both the railroads and street traffic. Our journey now takes us across the rich agricultural state of Iowa, which lies between the Mississippi and the Missouri rivers. It is one of the most productive farming regions of the world; the land is rolling prairie; everywhere are heavy crops of corn, grass, and wheat, and large herds of cattle, horses, and swine. Our route carries us through **Des Moines**, the capital of the state, and an important manufacturing center. As we approach the Missouri river we notice that it lies in a deep valley bordered by high hills. We descend these heights for 20 miles or more before we reach the river. Here, as on the opposite side of the state, we find three important cities: **Council Bluffs**, **Omaha**, and **South Omaha.** The river is spanned by three bridges to accommodate the railroads and other traffic. The state of Nebraska, which we are now

An orange grove at Riverside, Cal.

crossing, resembles Iowa in its productions. Farmhouses and grain elevators dot the landscape, and the herds of cattle become more numerous as we enter the region of the Great Plains. Owing to the increasing elevation, the air grows drier and cooler, vegetation becomes scanty, trees few, and clouds of dust are raised by the passing train. At last we reach **Cheyenne** in southeastern Wyoming at the base of the Rocky mountains and over 6,000 feet above the sea. This is one of the highest points on the plains. Thousands of cattle and sheep are driven in here for shipment to eastern cities. Before leaving the state of Nebraska we shall have set our watches again, and we are now running on "Mountain Time."

Leaving Cheyenne our train slowly climbs the eastern slopes of the Rockies, winding back and forth, and following the river valleys until the summit of the **Great Divide** is reached. We descend the western slopes to the broad **Laramie** plains, where "railroading" is easier. This is a high and dry region and is almost entirely given up to sheep pasturing, for Wyoming produces more sheep and wool

than any other state. Farming is carried on by means of irrigation. Leaving the state of Wyoming we cross the rugged ranges of the Wasatch mountains and descend into the valley of the Great Salt lake at **Ogden**, a flourishing agricultural town, developed by irrigation. From Ogden we go by the Southern Pacific line to San Francisco. The most desolate part of our long journey lies across the state of Nevada. Here are barren stretches of country yielding little but sage brush, desert alkali plains, and streams which disappear in the sands or flow into inland lakes without outlets. One of the largest of these streams is the **Humboldt** river, along which the railroad is built for many miles. A few miles beyond **Reno** we enter the state of California and begin to wind in and out among the canyons and gorges of the Sierra Nevadas. Lofty peaks, some snow-covered, are on every side, and the scenery is very rugged and grand. Descending the western slope of the divide, we leave desert and desolation behind as we enter the valley of California, smiling with fruits, flowers, and varied vegetation. A final run of 150 miles and we enter **Oakland** on the bay of San Francisco.

QUESTIONS AND TOPICS. — (1) Compare the United States in size with other large countries of the earth. What advantages does it possess as to location, climate, surface, and natural wealth? (2) Describe the Atlantic Coast plain. Why are its rivers navigable? What is said of the products of the Atlantic Coast plain? Of the Gulf Coast plain? (3) Where is the Piedmont belt? What is said of its origin and surface? Describe the New England section. What caused the formation of lakes and rapids? What is the fall line? Why is it a good location for cities? What is said of coast line formation? What rivers form natural highways between the Atlantic coast and the Central plain? How did this affect the settlement of the country? (4) Name the chief ranges and groups of the Appalachian system. What noted peaks and valleys does it contain? Describe its mineral wealth; its forests; how have these affected occupations? (5) What is said of the surface of the Central plain? Name its three divisions. What are its highlands? Soil and products of the prairies. Climate and vegetation of the Great Plains. Effect of irrigation. (6) What river systems are found in the Central plain? How are they connected? Describe an inland voyage from the mouth of the Mississippi to the mouth of the St. Lawrence. Describe the chain of the Great Lakes, explaining differences in level and depth and naming the rapids and canals. (7) Area of the Western highlands. Name the several divisions. How do the rivers differ from those of the Appalachians? Parks. Canyons. High peaks. Describe the surface of the Columbia plateau; of the Colorado plateau. (8) What ranges bound the Great Basin? Describe its surface, vegetation, and towns. Name and describe the Pacific ranges. What high peaks among them? How does the Pacific coast differ from the Atlantic coast? (9) How do you explain the temperature and dryness of the Pacific highland region? What part of it has heavy rains? Name its chief rivers and river systems. (10) Methods and benefits of irrigation. What is the object of the Weather Bureau? Equipment of a station. Describe the making of a weather map. Value of weather predictions. (11) Divisions of government. Describe each. Name the chief powers of each. (12) What is the difference between local and Standard Time? Why is Standard Time necessary? Explain how the time is changed in passing from one belt to another. Describe a journey across the United States, following the forty-second parallel.

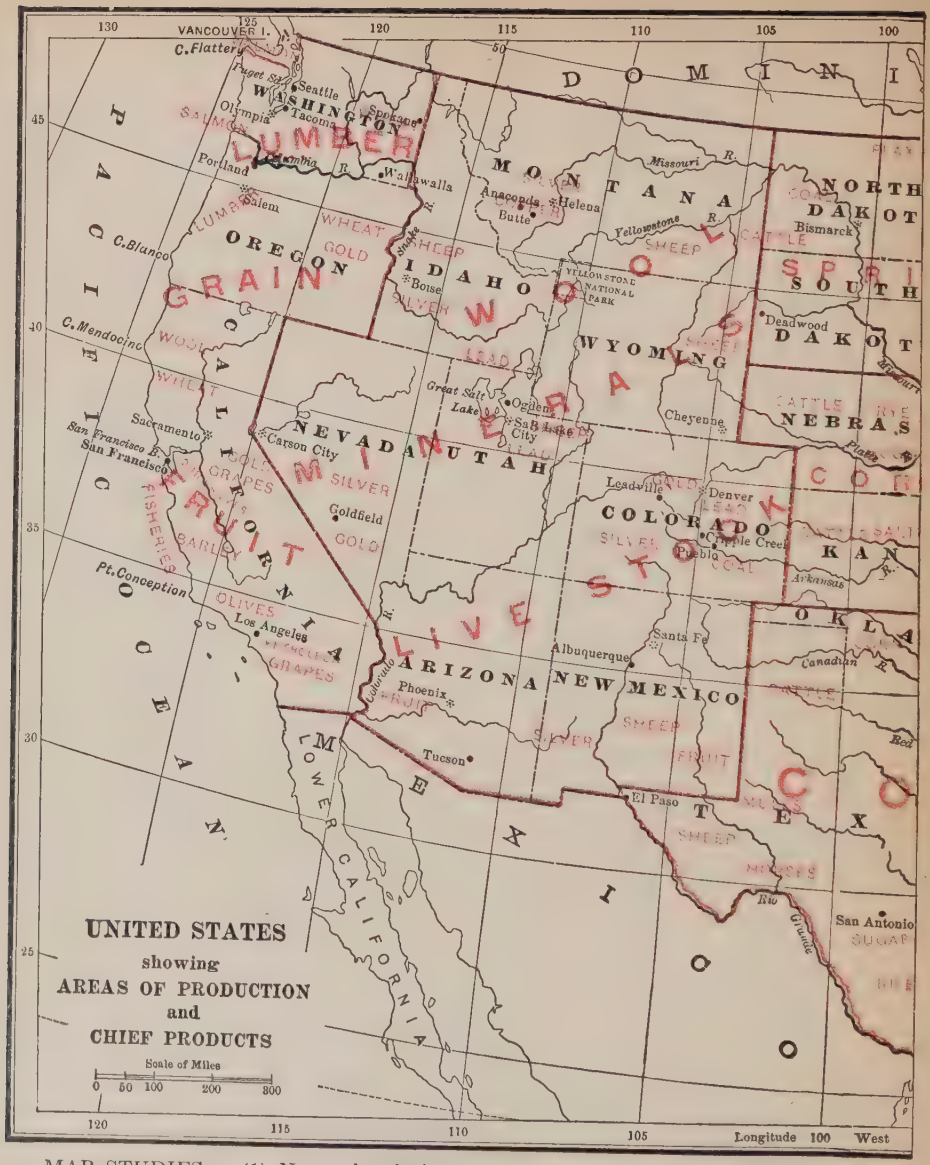
CHAPTER III

THE LOCATION OF INDUSTRIES, OCCUPATIONS, AND CITIES

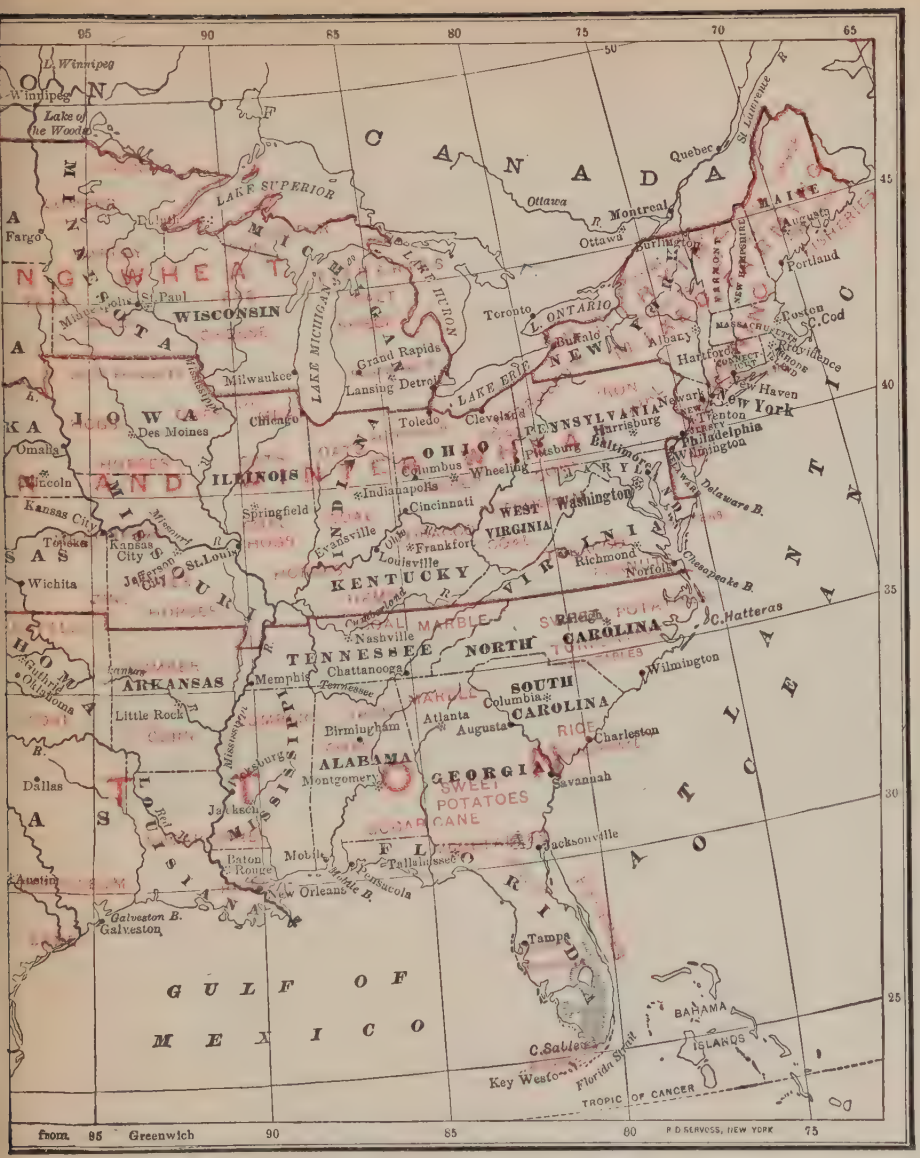
Areas of Production. — We have learned that the United States consists of several natural divisions differing widely in surface, soil, climate, and production. We may also divide the country into **productive areas**, or sections (see MAP, *page* 56), in which one or more products are more abundant and valuable than in any other section. We find that one part of our country is devoted mainly to raising cotton; another part to corn and wheat; another to mining and grazing; another to lumber, grain, and fruit. This division into areas of production depends mainly upon soil and climate, the presence of minerals, forests, or fisheries, upon nearness to the sea-coast or to large cities, and sometimes upon a combination of two or more of these circumstances.

Rice and **sugar** can be grown only in the swampy lowlands of the coast plains, while cotton flourishes best on the river-bottoms and uplands. Fruits and vegetables are grown in large quantities on the coast plain, because the markets of the large cities are easily accessible. Industries connected with metals, forests, and fisheries are usually found near the places where the materials used can be obtained.

Classes of Products. — Many products, such as fruits, vegetables, fish, game, and poultry, are directly useful to mankind as **foods**, and are sent to market in the form in which they are first obtained; but by far the greater portion of the products of our country are **raw materials** and must be manufactured. Wheat, cotton, wool, lumber, and iron must be made into flour, cloth, furniture, tools, and other useful forms before they can serve for food, clothing, or shelter or be utilized as comforts, conveniences, or luxuries. When raw materials have been altered in any way to fit them for our use, we speak of these new forms as **manufactured goods.**



MAP STUDIES. — (1) Name the six important productive areas of the United States. In what natural divisions of the country does each lie? (2) Name the states that lie entirely in each region. (3) Make a list of five states that are noted for lumber; five that raise sheep; five that produce coal and petroleum. (4) Where is salt obtained? Flax? Silver? Lead? Sugar-beet? (5) Where are the important fisheries? In what sections do you find the most fruits and vegetables? (6) Locate the following towns; tell in what area of production each is: Cheyenne; Denver; St. Louis; Omaha; Louisville; Atlanta; Richmond.



MAP STUDIES FOR EACH STATE. — (1) In what area of production is this state? Name its other leading products. (2) Which of these products are Animal? Vegetable? Mineral? (3) Name some of the uses that are made of each of these products. (4) Has this state any coast, or navigable rivers? Of what value is each in carrying the products of the state? What cities of this state are situated along rivers? What can you tell of the industries of these cities? (5) What is the chief city of this state? What can you tell of its industries?

There are some products which are produced, bought, and sold that are neither foods, raw materials, nor manufactured goods; among these are horses and mules used for driving and draught purposes, wild animals kept on exhibition, flowers and feathers used in their natural forms for ornament, and trees, bushes, or other nursery stock which are set in the earth either for ornament or use. But these articles are unimportant as compared with any one of the other three classes.

Location of Industries. — It is evident that the farmer, the gardener, the miner, the fisherman, and the herdsman must find **employment** where soil, climate, or other natural resources supply the basis of their respective industries; but for the mechanic, the manufacturer, the merchant, and the professional man, the place of

Partial view of the works of the General Electric Company at Schenectady. The Mohawk river and Erie canal in the background. The works employ many thousands of people and form a city in themselves.

his employment is fixed by other considerations. The **natural location** for manufacturing industries is in or near the region which produces the raw materials used. This is especially true where the materials are bulky and expensive to transport. Coal, iron, ore, wheat, cattle, and lumber are materials of this sort. **Iron and steel** are made near the mines; **flour** near the wheat fields; and **furniture** and **farming implements** near the forests. **Canneries** and **condenseries** must be located near the sources of fruits, vegetables, and milk, as these materials are perishable and cannot be transported for any considerable distance. Other considerations which affect the location of manufacturing industries are **water power**, cheap **fuel**, and conveniences for transporting and marketing the products. Thus

we often find factories standing near rapids and waterfalls, on the banks of rivers and harbors, and especially in and near the great cities and seaports.

In **New England** we find cotton and woolen mills as well as other factories built near the falls of rivers, the sole consideration being cheap power. Workmen and supplies of every sort must be brought from a distance and the manufactured goods shipped away. As all this costs a great deal, many cotton manufacturers have found it more profitable in recent years to move their factories from New England to Southern cities near the cotton fields. **Sugar** and **oil refineries** are located in our large seaports solely on account of the saving of freights in receiving and shipping goods by water. There are hundreds of manufacturing industries carried on in our large cities, because more skilled laborers are found there and because such cities afford the best markets for the finished goods. Among such industries are the making of jewelry, high grade gloves and shoes, millinery, and clothing. The bringing together of large numbers of people into cities gives rise to a great variety of occupations, but in the country or in the small manufacturing town we find nearly everyone engaged in the same employment.

A view on lower Broadway, showing office buildings.

The Growth of Cities.— Nothing has been more wonderful in the history of our country than the rapid growth of its cities; they are now the homes of one third of our population. Our first large cities were **seaports** and owed their growth and importance to trade. Boston, New York, Philadelphia, Baltimore, and Charleston carried on nearly all the trade of the thirteen colonies. **Smaller towns** grew up along the banks of navigable rivers. When roads and canals were built, affording communication with the interior parts of the country, cities and towns sprang up along these routes of travel. Many towns have grown up on

account of their nearness to certain productive areas. The discovery of **gold** in California, Colorado, and Nevada led to the founding and growth of San Francisco, Denver, and Goldfield. Anaconda, Butte, and Helena owe their existence to the **copper mines** of Montana. The city of Guthrie in Oklahoma sprang up within a few days after the United States government threw open the territory for settlement. At first it was a city of tents, but these were soon replaced by structures of wood and stone. These early settlers were attracted by the fertility of the soil, and there were so many of them that the mechanics, storekeepers, and professional men needed to attend to their wants could establish a small city at once.

Probably our **railroads** and **manufacturing industries** have contributed more to build up cities than all other causes combined. The cities of Spokane, Wallawalla, Cheyenne, and dozens of other places in the Central and Western states were at first merely railroad stations, to which the ranchmen and farmers brought their stock and farm produce for shipment. These men had need of dry goods, groceries, tools, machinery, coal, and lumber for home use. They could buy these supplies most conveniently when they took their products to market. Thus a **shipping-point** naturally becomes a **trading-center** with stores and shops of all kinds. Soon the town becomes large enough to afford employment to a doctor, a lawyer, a dentist, and a surveyor. **Schools** and **churches** are established with teachers and clergymen to look after them. A **city government** is needed to keep order, look after the safety of life and property, and to provide for the good of the community in many ways. By and by various manufacturing **industries** spring up, for the people find it cheaper to make certain things at home than to bring them in from distant places. In this way hundreds of railway stations have grown into flourishing cities. Without the railroad thousands of square miles of fertile land in the interior of the country, remote from navigable streams, would be almost worthless on account of the expense of reaching a market for the products of the soil and the difficulty in obtaining supplies. So important is railroad transportation to the growth of our interior cities that we may almost say that their prosperity and population are measured by the number of trains that arrive and depart daily.

The **factory system** brings together large numbers of people; a single manufacturing plant often gives employment to many thousands of hands, forming a city in itself. There are nearly 300,000 manufacturing establishments in the United States employing more than 17,000,000 of people; nearly all of these live in cities or large towns. When we add to this number the carpenters, shoemakers, shopkeepers, and other tradesmen necessary to attend to the needs

of this large population, the teachers, physicians, and other professional men whose services they require, and the men needed to transport the foods, raw materials, and manufactured goods which they require and produce, we begin to realize to what an extent our manufacturing interests have built up the population of the cities.

Many people live in the cities on account of their greater **attractiveness** as places of residence. The city offers better advantages for **education** and **social life**. It has better schools, colleges, and churches than can be found in the country; there are theaters, opera houses, and other places of amusement; homes are better lighted and heated, and sidewalks and lighted streets make travel safe and easy by night as well as by day. Artists, authors, and specialists in every sort of profession make their homes in the city, because it is there that they find profitable employment.

Some cities are famous for the production of one article or class of articles because of some special advantage. Flour is made at **Minneapolis**, leather at **Milwaukee**, furniture at **Grand Rapids**, iron and steel at **Pittsburg**, and cotton cloth in many cities of the Southern states, because these cities have wheat, hides, lumber, coal, and cotton right at their doors. But as cities grow, their manufacturing industries become more numerous and complicated. In New York City, for example, there are more than 250 different kinds of industries.

A street on the East side, New York City, devoted to small shopkeepers and tenements.

Effect of Trade. — Quite a large part of the population of every city is made up of **merchants**, **shopkeepers**, and **mechanics** of one kind or another. The grocer, the butcher, the druggist, the dry goods merchant, the shoemaker, the tailor, and a variety of others are necessary to our comfort and convenience. These men furnish

employment to a small army of drivers, clerks, apprentices, and other assistants who aid them in buying, selling, and handling their goods and in keeping accounts.

The merchants of the smaller cities are generally **retail merchants**; that is, they sell their goods in small amounts directly to those who consume them. But in the larger cities, especially in those that are good **distributing centers** like New York, Boston, Chicago, St. Louis, Cincinnati, Atlanta, Dallas, and Denver, there are **wholesale merchants** of every sort, who sell goods in large amounts to the retail dealers. These merchants in turn buy their goods of the **producer** or manufacturer. We sometimes call the merchant class **middlemen**, because they stand between the producer and the consumer. The factories often sell their product directly to the retail merchant. Both the manufacturer and the wholesale dealer have in their employ many traveling **salesmen** who call upon the retail merchants with samples and try to secure their orders for goods. The larger retail merchants employ their own **buyers**, who visit the wholesale dealers and factories and buy goods or contract for their manufacture. Many of the large retail **department stores** in our cities have their own factories, and thus dispense with the "middlemen" altogether.

Foreign Trade. — So far we have been describing only our domestic, or home, trade; but in our large seaports the foreign trade gives employment to a large number of people. The greater part of our merchants who do a large business are **importers**; that is, they buy some of their goods in foreign countries. A large proportion of our manufacturers are **exporters** and sell a part of their goods abroad. The goods that are bought and sold in foreign countries are handled at certain of our seaports, designated by the Government as **Ports of Entry**. At such ports the Government has a custom house with inspectors, clerks, and bookkeepers, who examine the goods that are imported and collect the **duty**, or tax, which the Government levies on certain articles. All this work of packing, transporting, and shipping imports and exports and keeping the accounts requires the labor of many people who go to swell the population of the city.

Movement of Population. — In the United States the people readily change their homes in order to find profitable employment. Many people have been moving from the country into the cities on account of the low price of farm produce and the better opportunities afforded by the city for making a living. At the present time, however, this process is likely to be reversed. The needs of our large city population have made the prices of all kinds of food so high that farming is becom-

ing more and more profitable, and has already attracted large numbers of people from the cities. It is generally true that every individual seeks the best market for his labor. Since 1897 over 400,000 Americans have gone to the wheat lands of western Canada, because they are cheaper and more productive than the farms which were held at home. The general movement of our population has been from east to west, and this movement is still continuing.

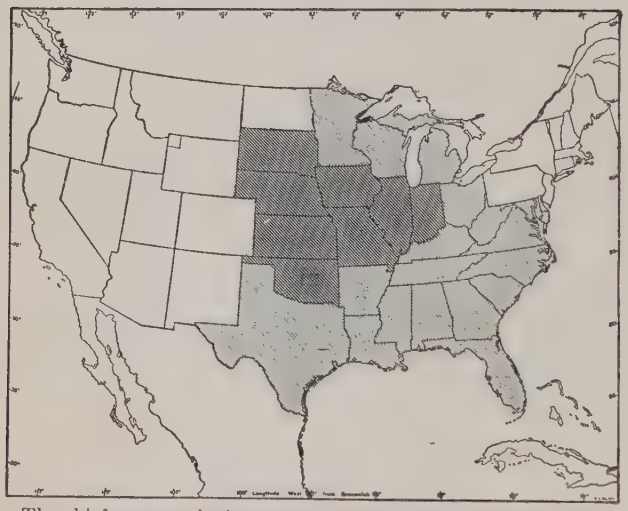
Custom House in New York City. One half the imports of the United States are received at this port.

QUESTIONS AND TOPICS. — (1) What is meant by productive areas? Name the six leading ones of the United States (see MAP, *page* 56). How are these areas determined? (2) What are the three leading classes of products? What is meant by raw materials? By manufactured goods? Which are more valuable and why? (3) How is the location of industries fixed? What is the best location for the farmer? For the manufacturer? How is the location of industries affected by transportation? By the nature of the materials used? How affected by water power and fuel? What manufactures are peculiar to large cities? (4) Where were the first large cities located in this country? What fixes the location of cities? Name cities that have grown rapidly, and describe the causes of growth. How do railroads affect the location and growth of cities? What is meant by a trading center? How have factories affected the growth of cities? What classes of people generally reside in cities? Name cities devoted mainly to a single industry. How do you account for the large number of industries carried on in some of our cities? (5) What classes of people make up a large part of a city's population? What is meant by producer; consumer; middleman; distributing center? Name classes of people that find employment with merchants. (6) What is meant by Port of Entry? By custom house? Name classes of people who find employment in Ports of Entry. (7) What usually fixes one's place of residence?

CHAPTER IV

VEGETABLE PRODUCTS

Importance of Agriculture. — The United States is the chief agricultural country of the world. It contained in 1920 6,450,000 **farms,** averaging one hundred and fifty acres each, worth seventy-eight billion dollars and employing twelve million people. The annual product of these farms is now worth 66 billions of dollars. Three fourths of this enormous product is consumed at home; the other fourth is exported, mainly to the thickly settled manufacturing countries of Europe.

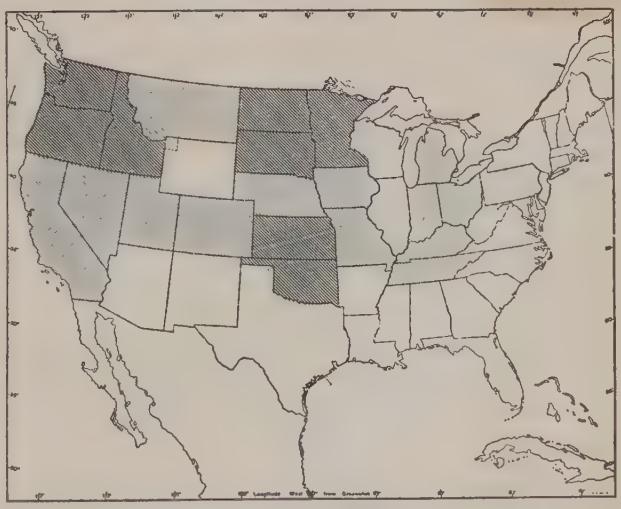


The chief corn-producing states. Heavy tint indicates a yield of 25 bushels or more per capita; light tint, from 5 to 25 bushels.

Corn, or **maize**, is our most valuable farm crop. It requires a richer, heavier soil than wheat and a warmer climate. From four to five months are required to grow and ripen it. Hence its range in latitude is lower than that of wheat. Corn contains more fatty matter than other grains, and on this account is a good food for out-of-door workers. It is especially valuable for fattening animals, and three fourths of the crop is used for that purpose.

The fortieth parallel passes through the center of the **corn belt**, which stretches from Ohio to Kansas. Every state raises corn, the crop ranging from a few thousand bushels in some states to nearly 300,000,000 in Illinois and Iowa. Five sixths of the world's product is raised in the United States. About three per cent of our crop is exported, mainly to Great Britain, Germany, the Netherlands, and Canada, and 22 per cent is manufactured into whiskey, starch, and glucose, a substitute for sugar. The export of starch and glucose amounts to several millions of dollars annually. The stalks of corn are useful as a forage crop. For this purpose the seed is sown thick and the stalks are cut before the ears mature. They are then either cured and stacked or chopped up and stored in silos.

Wheat is the most valuable and most widely distributed of all the cereals. It grows in temperate regions, but succeeds also in cooler climates as a spring crop, and in warmer regions, like India and our Southern states, as a winter crop. For **winter wheat** the seed is sown in early autumn and the plants get well rooted before the frost comes. **Spring wheat** is sown in the spring and ripens later than winter wheat.



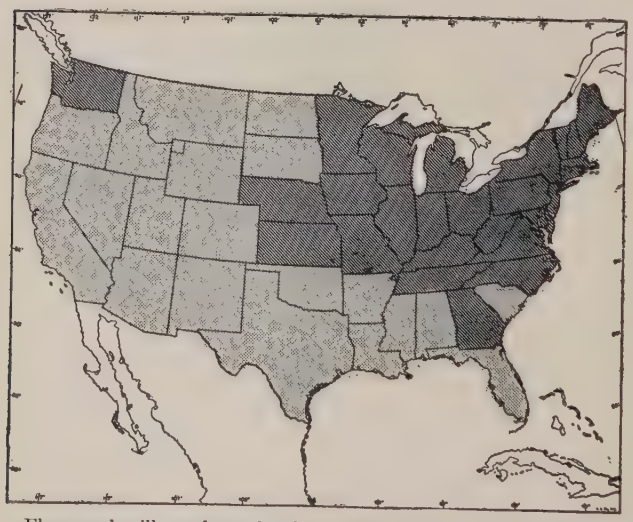
Chief wheat-growing states. Heavy tint indicates a yield of 25 bushels or more per capita; light tint, from 5 to 25 bushels.

Dry climates like those of Russia and California produce "hard wheat," while moister climates yield "soft wheat." The best flour is made from a mixture of the two kinds. A moderately rich deep loam is the best soil for wheat. The yield per acre varies according to soil and cultivation from 7 or 8 bushels in India and Australia to 30 and even 60 bushels in England, France, and the United States. The **world's wheat crop** is nearly the same as the corn crop, being about 3,000,000,000 bushels. But while the United States produces five sixths of the corn crop, she produces only one fifth of the wheat crop. Russia, France, India, and Austria-

Hungary come next in order in the production of wheat. The **wheat belt** in the United States lies a little north of the corn belt.

The United States is the leading country in the production of wheat, largely on account of the **machinery** used for harvesting and handling the crop. On the great farms "out West" the level prairie is broken up with huge **steam-plows**. The seed is sown by **drills** and the crop is harvested with machines that cut and bind the grain. If the crop is ripe and the seed is hard, a combined **harvester** and **thresher** may be used, which not only cuts the grain, but threshes and bags it. As soon as the wheat is threshed, it is stored in large buildings called **elevators** until ready for market. Some of the larger elevators will handle a thousand bushels a minute.

Flour. — A large part of the wheat crop is shipped by rail to the milling centers to be made into flour. Flour-making is carried on chiefly near the wheat regions. Minneapolis has the largest milling plants in the world. St. Paul, St. Louis, Superior, and Buffalo are the other large flour-making centers. Flour is now made by the **roller process**, which took the place of the old millstones about thirty years ago. The grain passes between six or seven sets of chilled steel or porcelain rollers, which crack instead of grinding it. By this process much of the gluten is retained that was formerly lost.



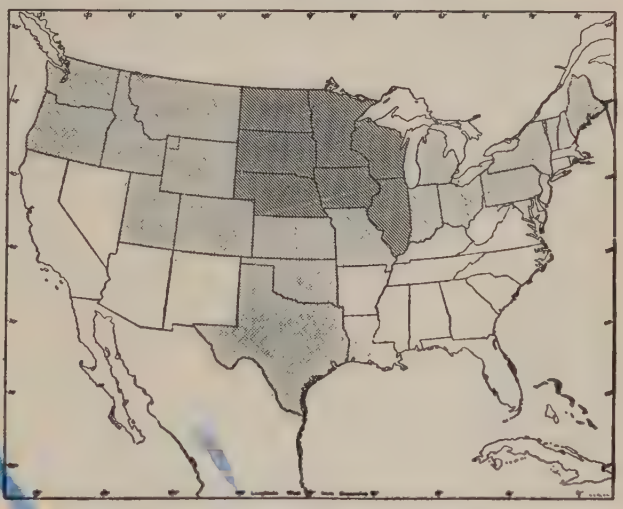
Flour and mill products in the United States. The heavy tint indicates a production of $100 or over to a square mile; the lighter tint, less than $100.

Export Trade in Wheat. — One third of our great wheat crop goes through the ports of San Francisco and Puget sound to China, Japan, and the islands of the Pacific, and by way of New York, Philadelphia, Galveston, and Baltimore

to the countries of northwestern Europe. Nearly one half of the wheat exported is in the form of flour, and is sent mainly to tropical and Oriental countries that have not the means of manufacturing flour economically.

Rye will grow on poorer soil and in a cooler climate than corn or wheat. Wisconsin, Pennsylvania, and New York are the chief rye producing states; but the crop in the United States is small. Russia, Germany, and Austria-Hungary are the leading countries in the production of this grain. Rye bread is the common food of the poorer classes in northern Europe. In the United States this crop is largely made into whiskey. The straw is used for paper-making, packing, and as bedding for horses. It is often worth more than the grain.

Barley will grow in a colder climate than any other grain. Its chief use is in the manufacture of beer and whiskey, though in northern Europe it is still ground for making bread. California, Minnesota, Wisconsin, and South Dakota produce about two thirds of the country's entire yield. Russia, Germany, and Austria-Hungary surpass the United States in their barley product. A small part of the crop in this country is exported to Great Britain and her colonies.



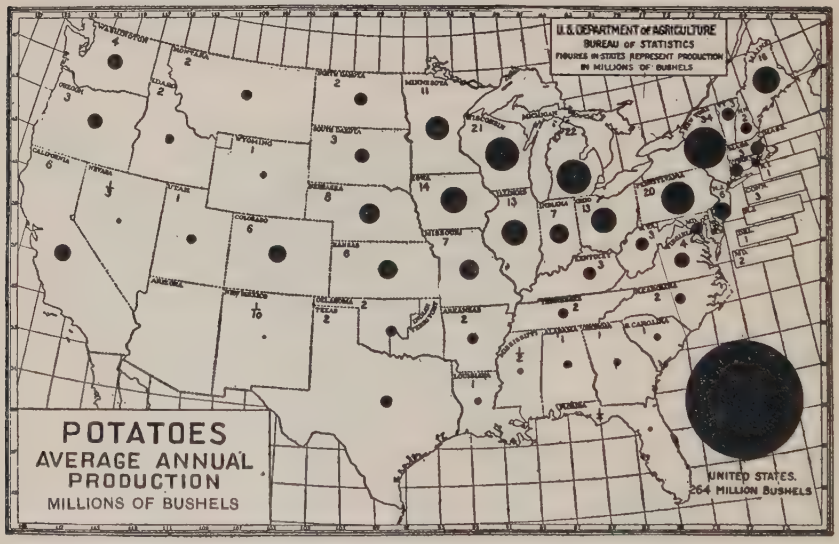
The chief oat-producing states. Heavy tint indicates a yield of 25 bushels or more per capita; light shading, from 5 to 25 bushels.

Oats. — The oat crop, measured in bushels, is, next to rice, the largest of the world's cereal crops. It is the best food for horses and is mostly used for this purpose. Two thirds of the world's crop is raised in northern Europe, and about one fourth of it in the United States. Oats grow well anywhere in the wheat belt; Illinois, Iowa, Wisconsin, Minnesota, and Nebraska being the leading producers. A small amount is exported to the United Kingdom and its colonies.

Buckwheat, unlike the other grains, is not a member of the grass family, but is related to the common dock and sorrel. The resemblance of the seed to beech-

nuts gave the grain its original name, "beechwheat." It will grow on poorer soil than any other grain, and as it matures quickly, it may be sown in July after harvesting other crops. New York and Pennsylvania lead in this crop, nearly all of which is consumed at home.

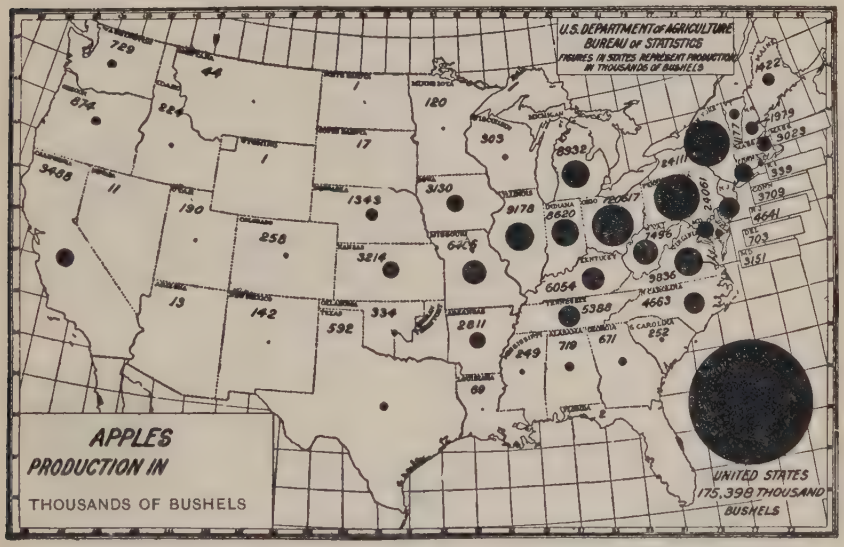
Rice is the staple food of half the human race. The plant is a swamp grass and grows best in salt marshes and along the lower flood plains of rivers. It has been a staple crop in China for 5,000 years and is cultivated generally in southern and southeastern Asia.



In the United States it grows along the coasts of Louisiana, Texas, Georgia, and the Carolinas. In cultivating rice the fields must be made level and flooded at certain intervals during the growing period. The annual product in the United States is not far from 600,000,000 pounds of the grain, and practically none is exported. The crop of Japan, the leading rice country, is thirty times as great.

Vegetables. — Potatoes, onions, beans, and peas are important articles of food and are raised for home consumption. They grow throughout the country. Garden products are raised extensively on the Atlantic coast plain from Long Island to Florida and are marketed in the large cities. Among garden fruits strawberries are the most valuable. A great variety of vegetables are grown in hot-houses, and the markets are kept supplied throughout the year.

Fruits. — The apple is the leading American fruit. It is grown in large quantities in the cooler temperate states, and the surplus product is exported mainly to Great Britain. Since the apple crop must all be marketed at about the same time, owing to the perishable nature of the fruit, there was formerly a great fall in prices at harvest time, due to the glutted market; but now the surplus crop is held in cold storage until there is a demand for it at a paying price.

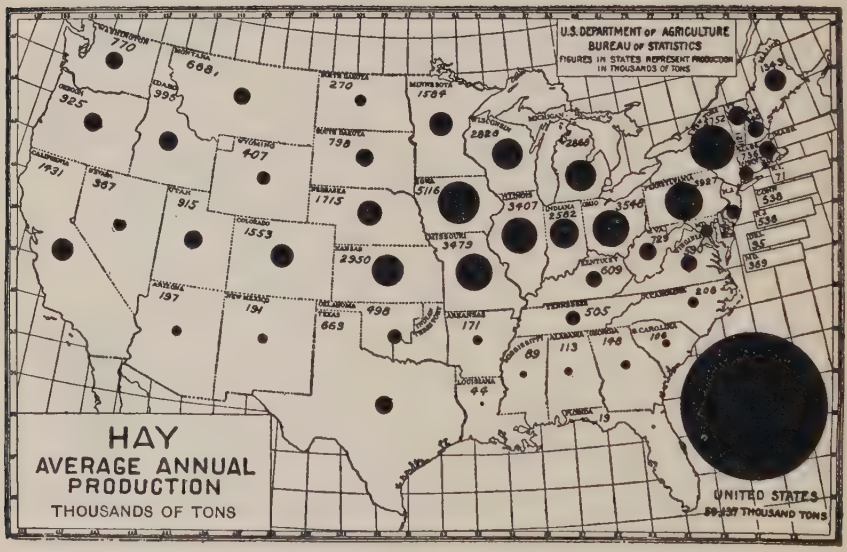


The **Pacific slope** exports raisins, apricots, and prunes. Its large orange crop is marketed at home. Grapes, pears, peaches, and cherries are sent in refrigerator cars to all parts of the country. Our largest importations of fruits are currants, raisins, dates, figs, lemons, and bananas. Cocoanuts and pineapples come from the West Indies, currants from Greece, lemons from Italy, dates and figs from Turkey, and raisins from Spain and Turkey.

Hay is the only **forage crop** of importance in our commerce. It ranks in value next to the wheat crop. New York and Pennsylvania produce one fifth of the entire country's crop, and the states of the corn belt come next. The whole product in 1909 was valued at $665,000,000. Less than one million dollars worth was exported.

The hay crop is consumed in the dairying and grazing regions. **Alfalfa** is an important forage crop in the dry regions of the west.

Sugar is a modern luxury. The old nations did not have it; nor did it come into common use until the last century. During the latter part of the nineteenth century the demand increased so rapidly as to raise the price greatly. It was then discovered that sugar could be obtained from beets, and that industry has become a close rival of the cane sugar industry.

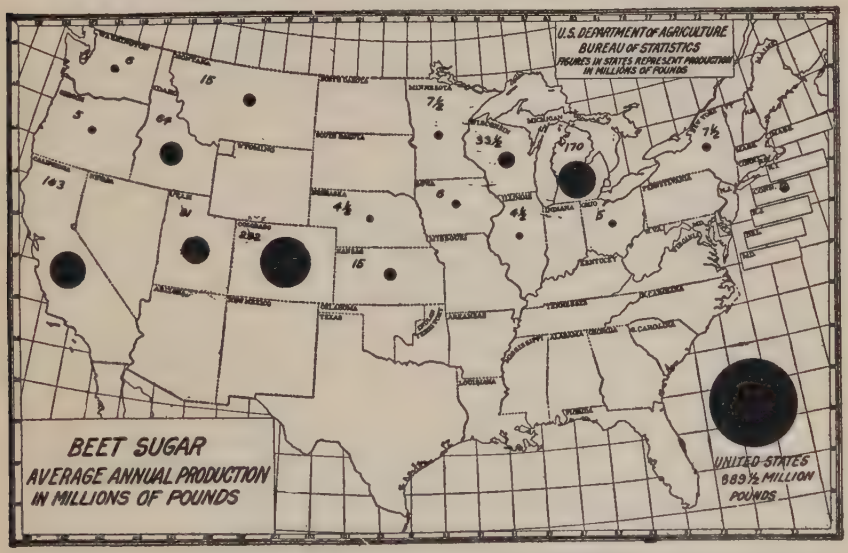


The sugar cane grows in moist tropical climates, attaining a height of ten or twelve feet with stalks several inches in diameter. The juice is removed by pressing the stalks between heavy rollers. It is then evaporated in huge vats, and brown sugar crystallizes out of the liquor. The sugar is separated from this liquor (molasses) and is sent away to the refineries where it is made into the granulated and loaf sugar of commerce. In extracting sugar from beets they are first sliced and put into cylinders of hot water by which the juice is dissolved. The liquor is then evaporated in the same manner as the cane juice. Germany, Austria, and France lead in the production of the beet sugar; in this country it is raised mainly in California, Michigan, and Colorado.

The greater part of the world's crop of raw sugar is used by Great Britain and the United States, Germany and France. Little is used by Latin or by Orien-

tal nations. The cane sugar of this country is raised almost entirely in Louisiana and amounts to about 1,000,000 tons annually. Besides using our own crop of sugar we import large amounts from Cuba, Java, Hawaii, Germany, France, and Porto Rico.

Fiber Plants; Cotton. — Cotton is the downy fiber attached to the seeds of the cotton plant. It resembles in this way the thistle, the milkweed, and the dandelion. The plant grows to the height of several feet and has numerous branches. A round boll, or pod,

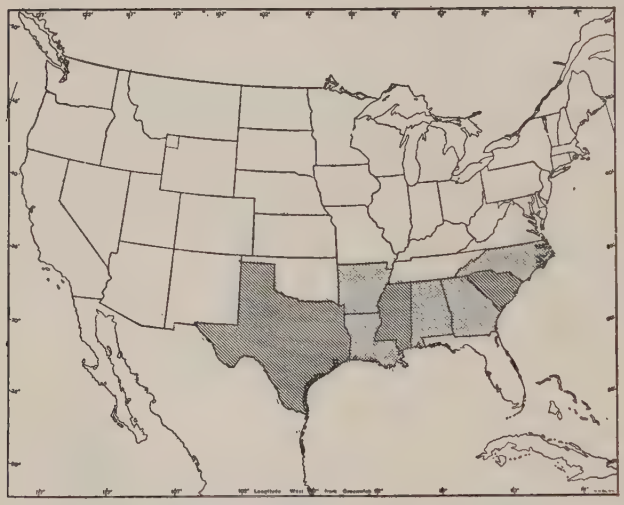


formed at the top of each flower-stalk bursts open when ripe, exposing a white fiber. A cotton field ready for picking is a beautiful sight.

Cotton requires a rich soil, abundant rain, and a long hot summer. These conditions are found on warm coast plains and on the lower flood plains of subtropical rivers. **Cotton growing** requires little skill, and the cheapest labor is employed. The plants are set in rows three feet apart. In order to keep them upright they require frequent hoeing and must be kept free from weeds. When the crop is ripe the pickers, with sacks fastened around their necks, pass between the rows and pluck the white fiber from the bolls. Next the cotton is taken to the "gin," a machine for separating the fiber from the seed. It was the cotton gin, invented by Eli Whitney in 1793, that made cotton-growing profitable and revolutionized

the industries of the South. One machine does the work of a hundred pairs of hands and saves all the tedious labor formerly expended in picking the fiber from the seeds. After ginning, the cotton is pressed into **bales** of about 500 pounds each; these, when covered with coarse bagging, are ready for shipment. When sent abroad the bales are compressed into half their original size to save space.

The Cotton Belt. — In the United States cotton ranks in value next to corn. It grows in a well-defined area known as the **cotton belt**, which includes the rich river-bottoms and the coast plain from North Carolina to Texas. This area yields three fifths of the annual world crop of twenty million bales.



Area of greatest cotton production. The heavy shading indicates a yearly production of 300 pounds or more per capita; the lighter shading, from 100 to 300 lbs.

The grades of cotton are known as "long staple" and "short staple," according to the length of the fiber. The **sea-island** variety, which grows best on the islands off the Carolina coast, has a fiber two inches long. It is worth three times as much per pound as the "upland" variety, which has a fiber only half as long. The long staple makes a finer and stronger thread and is used in the manufacture of thread, laces, edgings, and embroideries, and also in making webbing for hose and rubber tires when great strength is desired. About one half of our cotton crop is manufactured at home. It is sent by river and rail to the ports of Galveston, New Orleans, Savannah, and Charleston, where it is received by coasting steamers bound for New York and Boston. From these points it is sent by rail or boat to the inland factory towns, where it is spun and woven into sheetings, calico prints, ginghams, shirtings, flannels, and outing cloths, which are the chief products of the American mills. The New England manufacturing towns are located where water power is available, but in recent years steam and electric power have been introduced into many of the mills.

Southern Factories. — At the close of the Civil War there were about 150 cotton mills in the South, which consumed three per cent of the cotton crop. Now there are 650 mills, consuming 18 per cent of the crop. Many of these mills are built near the cotton fields. They have cheap fuel and labor, no cost for transportation, and a good home market.

The oil, oil cake, and meal manufactured from cotton seed is now valued at over $100,000,000 annually.

Exports and Imports. — About one-fourth of the crop goes to Great Britain, the oldest and largest producer of cotton goods. The remaining fourth is sent mainly to the countries of western Europe and to Japan. The chief purchasers of our cotton manufactures are the Chinese, the South and Central American states, and the British dependencies (see *pages* 110–111).

Flax, Hemp, and Other Fibers. — Flax is obtained from the stalk of a plant. It is the oldest fiber known, originating in western Asia. **Linen** made from flax was a common material for clothing among all early peoples, and was used by the ancient Egyptians in wrapping the dead after embalming. In the United States the plant is grown for the seed, from which **linseed oil** (paint oil) is made. The cost of separating the fiber from the stalk is too great for its profitable production in this country. Russia, Holland, Belgium, Ireland, and Italy are the chief producers of flax. Some raw flax is imported and made into thread, twines, toweling, handkerchiefs, table cloths, etc., but the greatest part of our linen goods is imported from Great Britain, Germany, Austria, and Belgium.

Other fibers are imported in large quantities for the manufacture of cordage, sacking, sail cloth, rope, mattings, rugs, paper, and coarse linens. About 8,000 tons of hemp are raised in Kentucky, the only state engaged in this industry. **Manila hemp** comes from the Philippines; **henequen**, or sisal hemp, from Yucatan; New Zealand hemp and Mauritius hemp are imported from those islands. Jute comes from India, and istle from Tampico. One of our largest importations is **fiber, raw** and **manufactured.**

Forests. — The forests of the United States are in three principal sections: the **pine** areas of the north border, including parts of the states of Maine, New York, Michigan, Wisconsin, and Minnesota; the **spruce**, **cedar**, and **redwood** areas of Washington, Oregon, and California; and third, the southern section, reaching from Virginia to Texas, which supplies the hard Georgia or yellow pine, Carolina pine, oak, cypress, and various other hard and soft woods.

The United States produces more lumber than any other country, but the

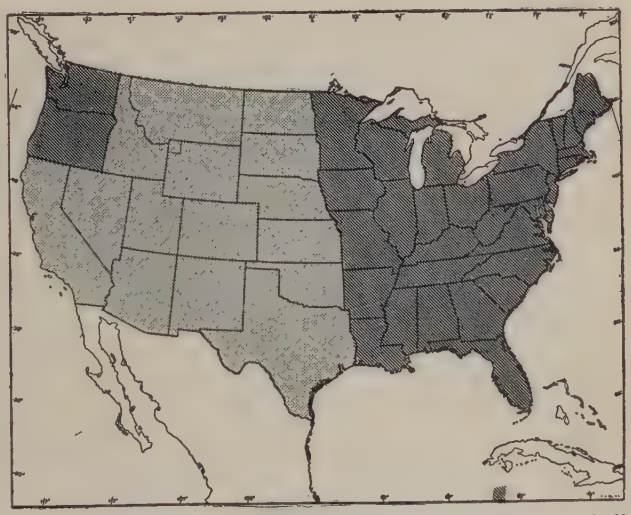
forests have been wastefully cut and also greatly damaged by fire. Many countries place their forests under government control. In these countries the trees are kept at the proper distance apart and free from underbrush. When they reach maturity they are cut and young trees are set out to take their places. Some of our states, as well as the general government, are seeking to find out the best ways of preserving and cultivating the forests. Parts of the Adirondack and Catskill regions have been set apart as a preserve by the state of New York. Other preserves have been set apart by the government on the public lands of the West, and many have been purchased. One reason for this is the effect that forests exercise on the flow of streams. The vast accumulations of roots and vegetable mold in the forests serve to hold back quantities of water, which is given out gradually

A lumber camp on the St. Francis river, Arkansas.

during the summer, to feed the streams and lakes. But when the forests are cut away the surface of the ground becomes hard and the water supplied by spring rains and melting snows flows off quickly, often causing disastrous floods. Moreover, before the close of the dry season the smaller streams dry up, the rivers become unnavigable, and frequently the water supply of cities gives out. It is therefore of the utmost importance to all classes of people that large forest areas, located on the great watersheds of the country, should be preserved.

Lumbering in the northern forests is carried on in winter, when the snow makes it easy to haul the logs to the streams. When the ice breaks up, the logs are floated down to the **saw-mills,** where they are sawed into lumber. The lumber goes to planing and turning mills and to factories, where it is manufactured into doors, blinds, sash and other house trimmings, furniture, wagons, and the various other forms of wood that one sees on every hand.

The chief **lumber towns** of the northern section are along the basin of the St. Lawrence and the Great Lakes and include Bangor, Burlington, Plattsburg, Oswego, Detroit, Duluth, Superior, and Minneapolis. **Furniture factories** and **planing mills** are at La Crosse, Oshkosh, Saginaw, Bay City, Grand Rapids, and at many other large cities that consume the product which they manufacture. Besides pine lumber, the northern area produces birch, spruce, beech, and maple. The pines and cedars of the South and the redwoods of the Pacific coast are fine-grained woods and much used for finishing the interior of houses. The yellow pine is very hard and makes the best flooring. **Black walnut** is found in the Mississippi valley and Texas. It is our most valuable cabinet wood, but is growing scarce. **Hickory** is the strongest wood and is used in making spokes for wheels, tool handles, and for any object requiring great strength. **Oak** is a favorite wood for furniture. The ornamental "quartered" oak is made by splitting logs into quarters and sawing them so that the grain shows with a peculiar effect on the face of the boards. **White-wood**, or the tulip-tree, has little grain and does not split. It is used for wagon-boxes, doors, and ornamental woodwork and carving. The most productive hardwood forests of the United States at the present time lie west of the Mississippi river in the states of Arkansas, Oklahoma, and Texas. Much of the lumber is shipped to **Memphis**, which manufactures more articles from hard woods than any other city in the country.

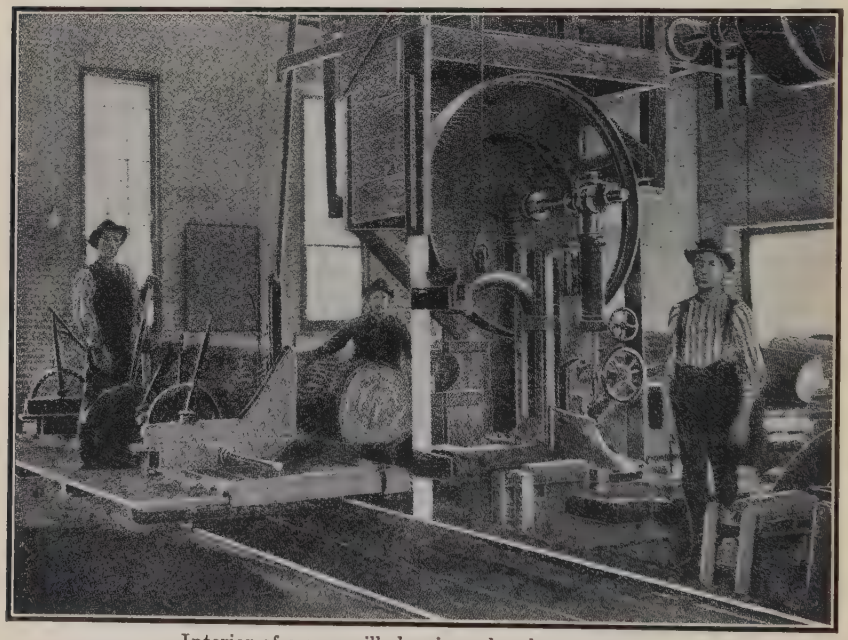


Lumber and timber in the United States. The heavy tint indicates a production of $100 or over to a square mile; the lighter tint, less than $100 production.

Exports and Imports. — The United States imports more lumber than any other country, and it also is the largest exporter, selling far more than it buys. In 1908 the exports were worth $81,000,000. More than half of this was in the form of furniture, house trimmings, wood-pulp, etc., and went chiefly to Great Britain, Germany, Canada,

and the West Indies; the imports consisted of cabinet woods from the tropical countries, soft woods and wood-pulp from Canada, and some manufactured cabinet ware from European countries.

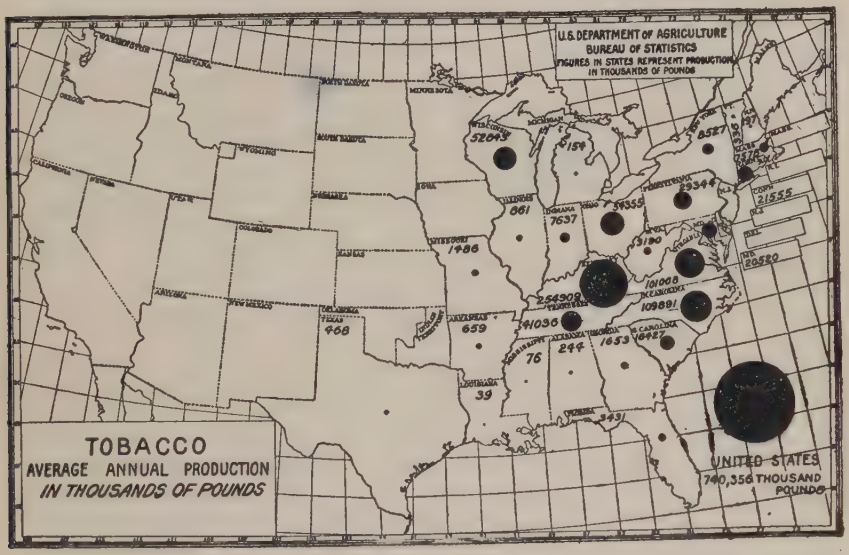
Gums and Resins. — The pine forests of the South yield vast quantities of **tar**, turpentine, and rosin. Tar is obtained by distilling the wood. When the sap of the tree is distilled, spirits of **turpentine** is obtained and **rosin** is left behind. A thick tar called **pitch** is used in calking ships, while tar is used in coating the rigging to protect it from the weather. Turpentine is used as an ingredient of paints and varnishes, and also in medicine. Rosin is used in the manufacture of soap and varnish. Vast quantities of **naval stores**, as the pine products are called, are exported to Europe and to the British colonies. Other products of the forests are imported from foreign countries. **India rubber** is the most important, but there is a great variety of resins, drugs, and dyes that have a multitude of uses in the manufacturing arts.



Interior of a saw-mill showing a bandsaw at work.

Tobacco is classed as a drug. The tobacco of commerce is the dried leaves of a plant belonging to the potato family. It is a native

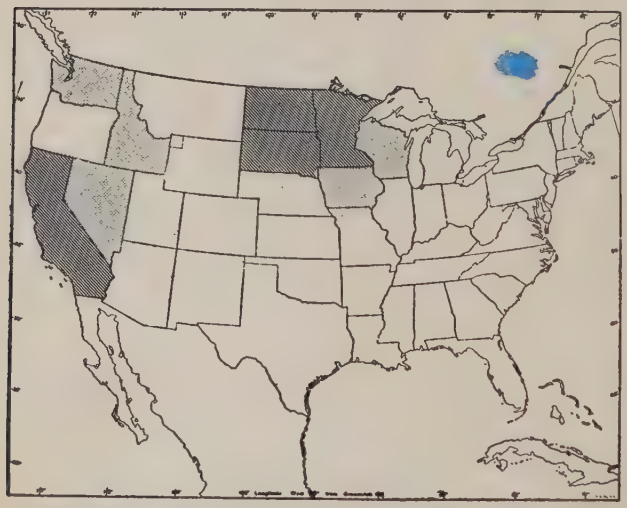
of America and was introduced into Europe by the early Spanish explorers. Tobacco requires a rich soil and careful **cultivation.** The plants are raised from the seed and set out in rows three feet apart. When the plant has reached a certain height the top is cut off in order that the leaves may grow as large as possible. At the end of about three months from the time of planting the plants are cut and cured. The leaves are stripped from the stalks in moist weather, to prevent breaking them, and put up in bales for shipment.



The peculiar aroma, or fragrance, of tobacco depends upon the soil and climate where it is raised and gives it its market value. Cuba, Egypt, and Turkey raise the choicest qualities. Sumatra, Porto Rico, the Philippines, Mexico, Brazil, and India also raise a good quality. The United States is the largest producer and Kentucky is the leading tobacco state. Virginia and North Carolina rank next. Cigarettes, chewing tobacco, smoking tobacco, and snuff are made largely in Richmond, Lynchburg, and Petersburg, Va., in Wheeling, Durham, N. C., and in St. Louis, where the greatest factories are located. Cigars are manufactured in large and small factories throughout the country. Quantities of Havana tobacco are brought from Cuba to Key West, Florida, and there made into cigars. The exports of tobacco are nearly twice the value of the imports and are sent mainly to Great Britain and her dependencies, and to Germany, Italy, and France. Smaller amounts go to Japan and China.

Beverages made from fruits and grain are of much value in both domestic and foreign trade. **Wine** is the first fermented liquor mentioned in history and is made in all countries where the vine flourishes. The largest producers are France, Germany, and the countries of southern Europe, though California makes nearly 50,000,000 gallons annually. This nearly supplies the home demand, and only a few million gallons are imported, mainly from France and Germany.

The **barley** product of the country is used entirely in the making of beer. The grain is moistened in warm water and allowed to sprout, by which process part of the starch is turned into sugar. Hops and water are then added and the mixture allowed to ferment. By fermentation the sugar is changed into carbonic acid gas and alcohol. The liquid is pressed out and put into barrels and bottles for shipment. **Breweries** are found in every large city, but St. Louis, Milwaukee, and Cincinnati are the largest manufacturers of beer. These cities are near the centers of barley production.



Chief barley-growing states. Heavy tint indicates a yield of 10 bushels or more per capita; light tint, from 5 to 10 bushels.

Distilled liquors are made from fermented juices. Brandy comes from wine and cider; whiskey from corn, rye, wheat, and barley; rum from sugar and molasses. Our export of liquors is only $3,500,000, while the imports are six times as much. The total amount of alcoholic liquor, including ale, beer, wine, and distilled liquor, consumed in the United States in 1908 amounted to 2,006,233,408 gallons.

Hops, used in beer-making and in medicine, are the greenish blossoms of a climbing vine. England, Germany, Austria, and the United States are the chief producers. The states of Oregon, California, New York, and Washington are noted for hop-raising. About one third of our crop is exported to Great Britain.

QUESTIONS AND TOPICS. — (1) Describe the agricultural industries of the United States. What is done with our farm products? (2) Name some of the uses of corn. Give the location of the Corn Belt. Name the chief corn-growing states. Name articles manufactured from corn. (3) Describe the cultivation of wheat. Location of the Wheat Belt. Leading countries growing wheat. Leading states. Give an account of the storing and shipping of wheat. Where is the greater part of our flour made? What is said of the process of manufacture? Describe our foreign trade in wheat and flour. (4) Soil and climate adapted to rye. Uses of rye and straw. What states lead in the production of barley? How do oats compare with other grain crops in amount and value? What are the leading oats states? Cultivation and use of buckwheat. (5) What kind of soil and climate does rice require? In what countries is rice the chief food of the people? Which of our states produce rice? What of the method of cultivation? Trade in rice. (6) What vegetables are of importance to commerce? In what parts of our country are vegetables grown for market in large quantities? Why are not fruits largely exported? What important invention has built up a trade in perishable fruits? What is said of the trade in apples? Name our chief imported fruits and the countries from which they come. (7) What is meant by forage crops? Value and uses of the hay crop. What state leads in hay? (8) From what plants is sugar obtained? Which of these is now the most important? Describe the manufacture of sugar. Name the countries and states that lead in the production of sugar. What is said of the import trade in sugar? (9) What is meant by fiber plants? Describe the cotton plant. Climate and soil adapted to cotton-growing. How was the production of cotton vastly increased? Location of the Cotton Belt. Name in order the leading cotton states. On what does the value of cotton depend? Name the two leading grades of cotton. To what uses is the "long staple" adapted? How is our cotton crop disposed of? Name the chief manufacturing centers. The trade in cotton. (10) Name the other leading fiber plants. What countries lead in the production of each? From what countries do we obtain raw fiber? What uses do we make of our importations? (11) Give the location of the chief forest areas of the United States. What states lead in the production of lumber? How does the ruthless cutting of our forests affect the streams? What has been done to preserve the forests? Give a brief description of the lumbering industry. Make a list of the chief varieties of hard and soft woods, the locality where each is found, and name some of the uses made of each variety. Describe the trade in lumber. (12) What is meant by naval stores? Name other important forest products and state where each is found. (13) Early history of tobacco. Method of cultivation. Name the chief countries engaged in tobacco culture. What states lead in its cultivation? What is said of the manufacture of tobacco? (14) What beverages are important articles of trade? Leading wine countries? States? Malt liquors? Distilled liquors? Hops.

AMOUNT OF LEADING CROPS IN UNITED STATES IN 1919 AND VALUE IN MILLION DOLLARS

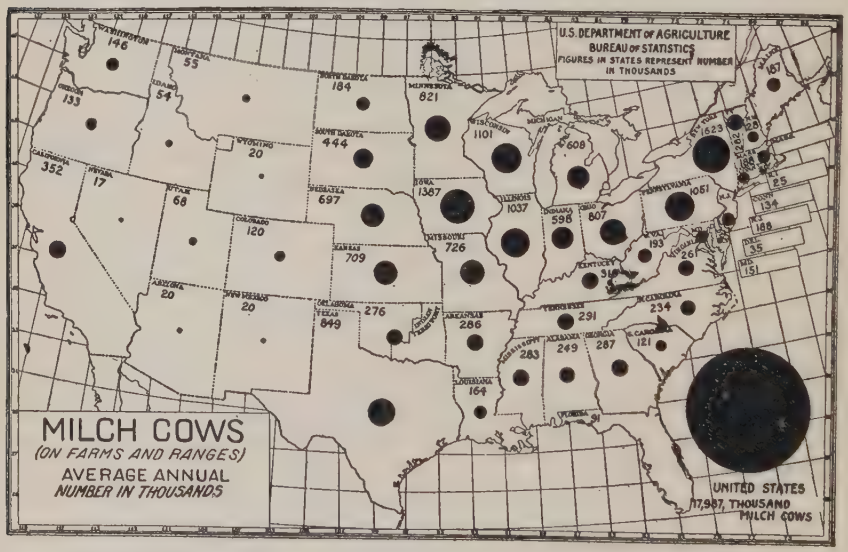
Corn	2,345,832,000 bu.	$3,507	Sugar	1,045,000 tons	$105
Cotton	11,376,000 bales	2,355	Barley	122,000,000 bu.	122
Wheat	945,403 bu.	2,074	Vegetables	—	193
Lumber	32,000,000,000 ft.	127	Berries	427,000,000 qts.	43
Hay	128,550,000 tons	2,316	Apples	137,000,000 bu.	206
Oats	1,055,000,000 bu.	2,523	Peaches	51,000,000 bu.	60
Potatoes	290,428 bu.	640	Peanuts	28,000,000 bu.	280
Tobacco	1,373,000,000 lbs.	444	Rice	35,331,000 bu.	104

Total Value of All Crops in 1919 was $15,000,000,000

CHAPTER V

ANIMAL PRODUCTS

Dairy Farming. — Milk, butter, and cheese are known as "dairy products." **Milch cows** are carefully bred with the view of obtaining the largest amount and best quality of milk. Since cows must be well fed in order to be productive, dairy-farming is carried on in those

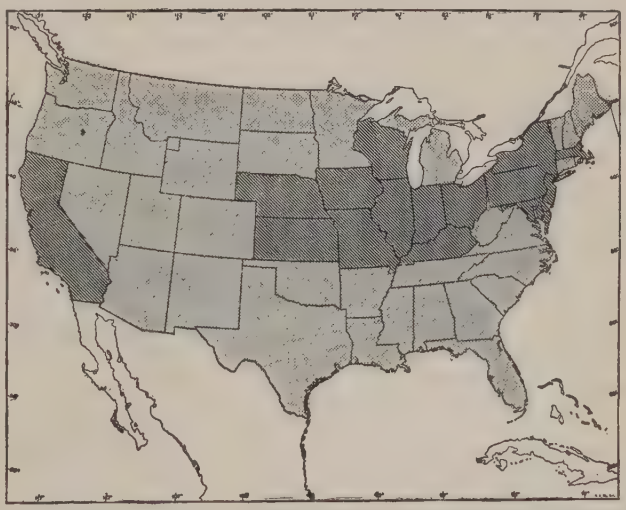


sections where corn, oats, and hay are most abundant. **Root-crops** are grown, green fodder is preserved in silos for milch cows, and brans from the milling towns and cotton-seed meal from the South also are used. New York, Iowa, Wisconsin, Pennsylvania, Illinois, Minnesota, Ohio, and Texas are the leading **dairy states**.

In the neighborhood of large cities very little milk is manufactured into butter and cheese because the milk finds so ready a market. Hence there is a large **domes-**

tic trade in these products with the more thinly settled Western states, which ship their product to Eastern markets, exporting also a small amount to the British colonies and Japan. Omaha and St. Paul now claim to be the largest butter-making cities in the world, the former city producing about 12,000,000 pounds a year. **Cheese** to the value of three millions of dollars is imported, mainly from Switzerland, Italy, and France.

The production of **butter** has been greatly increased by the establishment of **creameries** with improved methods of separating the cream from the milk. The old way was to set the milk in shallow pans and wait for the cream to rise. The cream was skimmed off and then made into butter in a hand churn. By the new process the milk is put into a large cylinder called a "separator" and rotated by steam or electric power. The motion separates the lighter cream from the heavier milk, and the latter is drawn off. The cream is then put into a churn, also driven by power, and made into butter. The butter is packed and kept in cold storage until needed, or shipped in refrigerator cars to supply the domestic or foreign trade.

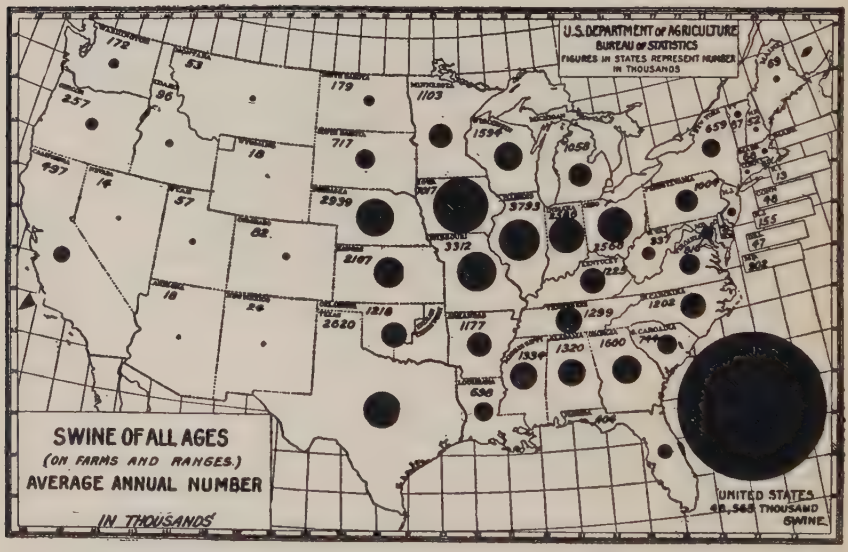


Slaughtering and meat-packing in the United States. The heavy tint indicates a production of $100 or over to a square mile; the lighter tint, less than $100 production.

Oleomargarine, an imitation butter made from animal fats, has a rapidly increasing sale. Formerly this substance was sold as butter, but the law now compels manufacturers to sell it under its own name, thus preventing unfairness to the dealers in genuine butter.

Beef Cattle are raised on the Western plains and are fattened in the states of the corn belt, although many are shipped to market directly from the grazing region. The success of **stock-raising** depends upon the climate, and also upon the quality of the grass found in the arid sections, which preserves its nutritive qualities even when

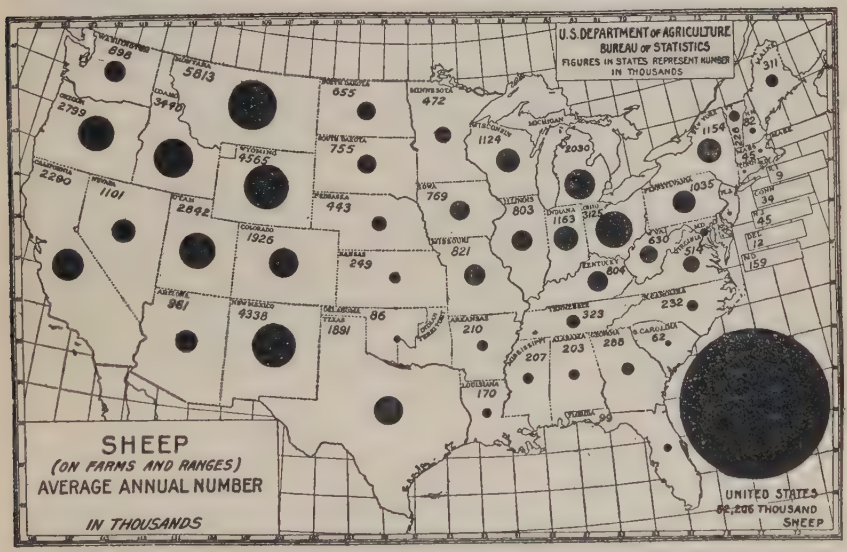
covered by the snow. The cattle were formerly pastured during the winter, and the long-continued cold and deep snow killed many of them. But where the public ranges have been fenced in and the cattle cannot wander over wide areas in search of food, the ranchmen have to raise **alfalfa** or other forage grasses for winter fodder. Texas, Colorado, Montana, and New Mexico are the greatest **ranching states**, while Iowa, Kansas, and Nebraska rank next to Texas in the shipment of beef cattle.



Millions of cattle are slaughtered every year in Chicago, St. Louis, Omaha, Kansas City, and Cincinnati, and the beef is shipped in refrigerating cars to every part of the United States. Cattle are exported alive to Great Britain and her dependencies. Canned, dried, and salted beef, and tallow are exported to Great Britain, Germany, France, and other countries of Europe, and quite largely to the American republics south of us.

Besides the beef and tallow, the hides, horns, hoofs, and bones of the cattle are shipped to tanning and manufacturing centers to be converted into useful articles. **Tanning** is largely done in Wisconsin and in Pennsylvania, those states supplying the hemlock bark necessary to that industry. **Oil** is extracted from the hoofs and the bones and from the horns are made **handles** for knives, and tooth-brushes; buttons and other useful articles are also made from the horns.

Hog Products. — In 1909 there were 54,000,000 hogs on the farms of the United States, valued at over $350,000,000, an amount equal to one third of the world's stock. **Corn** being the food for making pork, the states producing corn also produce pork, Iowa taking the lead. Chicago, Kansas City, and Omaha lead in pork-packing as well as in **beef-packing**. Lard, hams, bacon, and pork are the chief products. But the bristles are used for brushes and in mixing mortar; the intestines are used for sausage-casings; the bones are charred and used in sugar-refining or, together with the blood and other refuse of the slaughter-houses, are made into fertilizers.

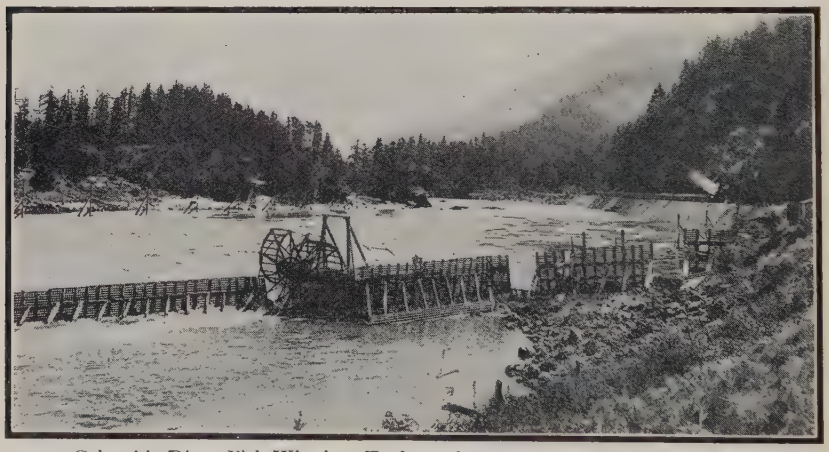


A **pork-packing establishment** is fitted with every mechanical device for rapid work. The hogs are killed, scraped, cleaned, and made ready for market at the rate of twenty per minute, each part of the work being done by a separate gang of men, who acquire great skill and rapidity. **Hog products** to the value of $115,000,000 were exported to Europe and other countries in 1908. Great Britain, Germany, and France are the largest buyers, but in one form or another the hog products of the United States find their way to all parts of the world.

Sheep and **wool** are not produced in sufficient quantity to supply our home use. 100,000 sheep were imported in 1908 and 125,000,000

pounds of wool to supply our factories. These imports are principally from Australia, Russia, and Argentina. The **grazing regions** of the West furnish most of our sheep and wool, although every state produces some. Montana, Wyoming, New Mexico, Idaho, Oregon, and California pasture one half of the 56,000,000 sheep on our farms.

Horses and mules are bred especially for farm and draught work, and many stock-farms in the West give careful attention to breeding



Columbia River Fish Wheels. Each catch as much as fifteen tons a day.

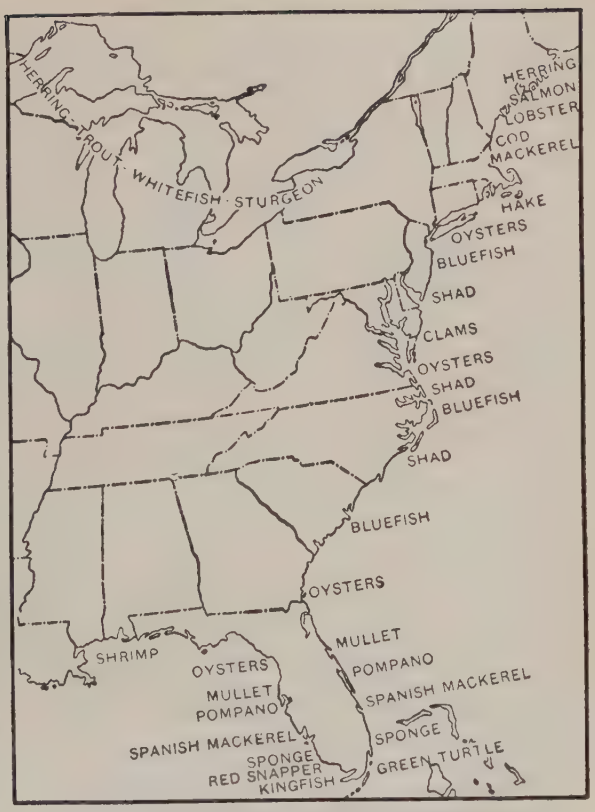
race horses and roadsters, carriage and saddle-horses. The **mule** is a hardy animal, adapted to the hot climate of the South.

The hide, bones, and hair of the manes and tails of horses are utilized for glue, leather, and upholstery work. Horse hide is used for saddle covering, razor-strops, and shoes.

Fishing is an important industry along the North Atlantic coast, on the Great Lakes, on the Columbia river and its branches, and on the rivers of Alaska. In the early spring the fish come in from the deep water to the shallows near the shore to deposit their eggs. The **shad**, **herring**, and **salmon** ascend the rivers for this purpose, swimming rapids and leaping waterfalls in order to find cold, fresh water. As they pass up the rivers, they are caught in nets and traps of various

kinds. The **salmon** is the most valuable river fish. The fisheries on the Columbia river are the largest industries of the kind in the country, and about 30,000,000 pounds of canned salmon are exported each year. The salmon fisheries of Alaska now produce over 100,000,000 pounds annually.

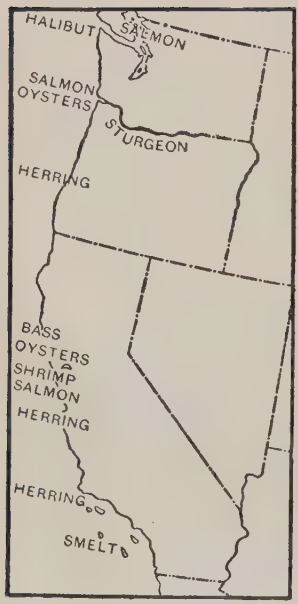
The **cod** is caught on the Grand Banks with hook and line. Boston and Gloucester, in Massachusetts, send out the largest fleet of fishing vessels. The most of the fish are salted and dried; some are shipped fresh, while from a considerable portion the bones are removed, the flesh being packed in boxes as "boneless cod."



Fisheries of the Atlantic coast and the Great Lakes.

Mackerel and **herring** run in schools and are caught in traps called weirs, or with a seine which secures hundreds of barrels at a single catch. The fish are salted in barrels and smaller packages, and few are exported.

Shell-fish. — **Oysters** are found in the warm coast waters, the greater part being taken in Long Island sound, in Chesapeake bay, and in the inlets of the New Jersey coast. **Clams** are dug out of the sand and mud at low tide. **Lobsters** are caught in traps along the rocky shores of New England. The oyster is the only shell-fish



Pacific coast fisheries.

exported to any extent. Great Britain and Canada purchase about 5,000 barrels a month during the season that begins in September and ends in April.

Poultry and **eggs** are produced almost entirely for home consumption. Some eggs are imported from Canada and China.

QUESTIONS AND TOPICS. — (1) What are dairy products? What is said of the breed of stock? What states lead in dairy products? Describe the domestic trade in these products. Describe the modern manufacture of butter. Foreign trade in dairy products. What is oleomargarine? (2) Where are beef and cattle mainly raised? Where fattened? Give an account of the ranching business. Describe the trade in beef products. What other parts of the animals are utilized? What use is made of the hides? Location of the tanning industry. (3) What are the chief hog products? What states lead in hog-raising? Why? What is said of the slaughtering process? Foreign trade in hog products. (4) What countries lead in sheep-raising? Which of our states are best adapted to keeping sheep? What is said of the trade in sheep and wool? (5) Which are the chief draught animals? Can you name some of the animals used in other countries for draught purposes? What is said of the trade in horses? (6) Where are the chief fisheries in this country? What are the chief varieties of fish? Describe salmon-fishing. How are cod, mackerel, and herring taken? Name the leading varieties of shell-fish. Where are they found? (7) Eggs and poultry?

AMOUNTS AND VALUES OF ANIMALS AND ANIMAL PRODUCTS IN 1920

	Number	Values
Horses	20,785,000	$1,962,503,000
Mules	5,041,000	741,000,000
Cows	23,619,000	2,031,128,000
Cattle	44,750,000	1,934,185,000
Sheep	47,114,000	1,934,185,000
Swine	71,727,000	1,263,269,000
Meats	670,053,000 lbs.	1,673,979,000
Poultry and eggs		1,047,990,000
Wool	259,307,000 lbs.	129,654,000
Fish		108,215,000
Dairy Products		1,481,462,000
Total Value		$12,758,591,000

CHAPTER VI

MINERAL PRODUCTS

Coal. — The value of the mineral products of the United States in 1908 was $1,595,670,186. Of this amount the coal output was worth about one third. If we add to the value of coal that of petroleum and natural gas, which are closely related to coal in origin and locality, we should have a total equal to nearly one half of the entire mineral products.

Coal is found in *beds*, or *layers*, sometimes deeply buried beneath the rocks and sometimes coming out at the surface. The same section of country may contain many beds of coal lying one below the other, with layers of other rock between. A vertical shaft is sunk into the earth until coal is found. The first bed reached is called the first level. The shaft may be sunk downward through various kinds of rock, and many beds, or "levels," of coal may be found. Coal varies in hardness and quality. The hardest is called **anthracite**; the softer varieties bituminous. Peat partially changed to coal is called **lignite**. Vast areas of peat swamps are found in all parts of the world.

The coal fields of the United States cover about 500,000 square miles and are widely distributed. The Appalachian region covers about 70,000 square miles and is the most valuable. It extends from Pennsylvania to Alabama and includes in eastern Pennsylvania nearly all the anthracite coal of the country. The interior region embraces the entire Mississippi valley and the coal fields of Michigan. It contains over 100,000 square miles. The western region, including the Western states and Alaska, covers about 130,000 square miles. Coal is profitably mined in about thirty of the states.

The **states leading** in coal production are Pennsylvania, Illinois, Ohio, and West Virginia; these produce annually half the entire output of thirty states. Colorado and New Mexico produce small quantities of anthracite coal, which is shipped as far east as Chicago and commands a high price.

Anthracite and Bituminous Coal. — Coal is composed of carbon and of certain volatile oils and gases which have resulted from the partial decay of plant life in the past ages. Anthracite, or hard coal, is nearly pure carbon and burns with very

little flame and smoke. Bituminous, or soft coal, contains a large amount of volatile matter and often burns with a bright flame, giving off soot and smoke. Hard coal is highly valued for heating purposes and for use in cities and in locomotives where smoke is objectionable. There are many grades of bituminous coal, some of which are valuable for coke and others for the manufacture of illuminating gases and for use in furnaces and forges. As coal is expensive to transport, it is a great advantage to have a supply in different parts of the country. Nations that import coal buy from the nearest market. Canada, Mexico, and the Spanish republics import a small amount of American coal, and some is sold to steamships of foreign nations visiting our ports. Anthracite coal is shipped to all parts of the country east of the Rocky mountains. Coal when taken from the mines is in masses of

A colliery and coal breaker at Wilkes-Barre, Pa. The breaker is the building on the right. Here the coal is graded and loaded into cars which run through the basement.

various sizes and mixed with stone and dust. It is prepared for market by breaking it and grading it according to size as "nut," "stove," and "egg" coal. The stone is picked out and the coal is washed free from dust.

The coal regions abound in great mounds of waste matter called "culm." This is now being utilized by crushing and pressing the dust into "briquettes," which make excellent fuel.

The anthracite coal mines of Pennsylvania are owned chiefly by the railroad companies whose lines enter those regions. The Reading, Lackawanna, Delaware & Hudson, Lehigh Valley, Central Railroad of New Jersey, and Ontario & Western railroads own coal cars by the hundred thousand, which are loaded at the mines and kept on sidings ready for shipment to all parts of the country.

Petroleum is found chiefly in two countries of the world, our country and Russia, and hence is one of our important articles of export. The pipe lines and improved methods of manufacture save transporta-

tion expenses and keep the price of kero
Oil is one of our largest exports, ran
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There are five ranges of hills south and west of lake Superior, in the states of **Wisconsin, Michigan,** and **Minnesota,** which produce nearly three fourths of all the iron ore used in this country. Alabama is the next largest producer of iron ore and has the necessary coal right at hand; limestone is not needed for smelting the Alabama ore. Many other states having convenient coal deposits produce iron ore. Pennsylvania, Tennessee, and West Virginia rank next to the states of the lake Superior region. In this latter section the ore is mined and handled with marvelous cheapness. As it lies near the surface, it is loaded directly into "hopper" cars by means of steam shovels. These cars run out on trestles built along the border of the lake; the bottom of the car is drawn aside and the load of ore drops directly into huge pockets or bunkers, from which it slides through a chute into the holds of vessels moored alongside. But a few seconds are required to unload a car, and a 6,000-ton barge can be loaded in two hours. These barges, on reaching their

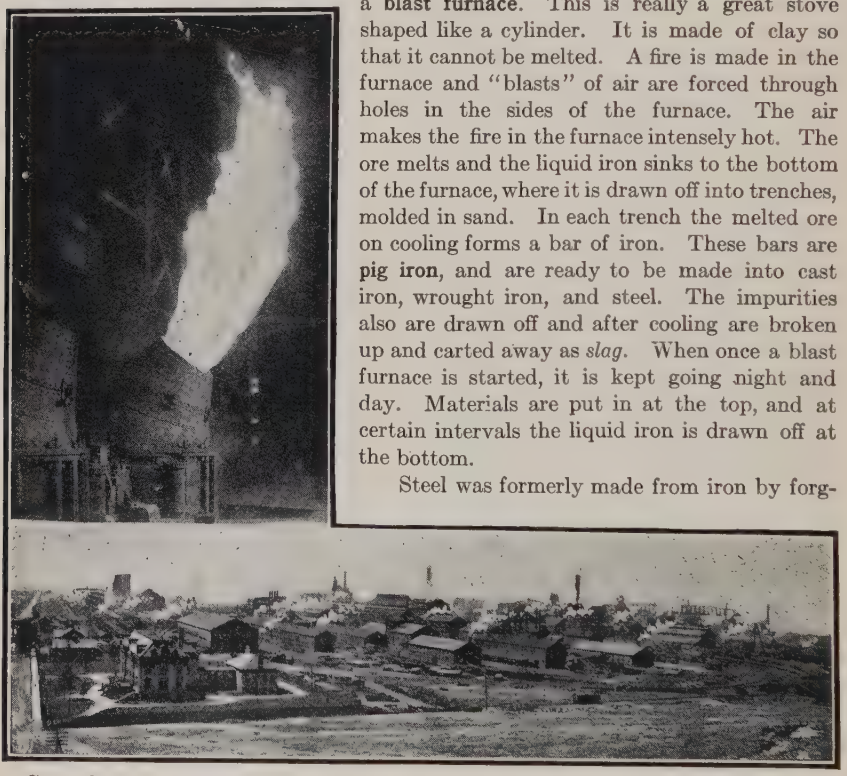
Works of the National Tube Company at Lorain, Ohio, showing a steam crane for unloading ore from the boats on the right and transferring it to the ore piles on the left.

destination at Chicago, Cleveland, or other steel manufacturing towns, are unloaded by means of steam scoops which dip down into the holds of the vessels and transfer the ore to cars which run to the smelting furnaces.

The **iron industries** of the country are carried on mainly in the coal regions, for the reason that it is cheaper to take the ore to the coal than it is to take the coal to the ore. Most towns in **Illinois** and **Ohio** bordering the Great Lakes are engaged in the iron and steel industries. **Pennsylvania** is the leading state in the production of these articles because she has the best coal for the purpose. The coal is used in the form of **coke** obtained by heating soft coal. The Connellsville district near Pittsburgh is the chief coke-producing region of the world. Owing to this fact, Pittsburgh has become the center of the largest iron and steel manufactures in the world. More than

one third of the world's supply of these products are made in the United States, and of this third Pennsylvania produces one half.

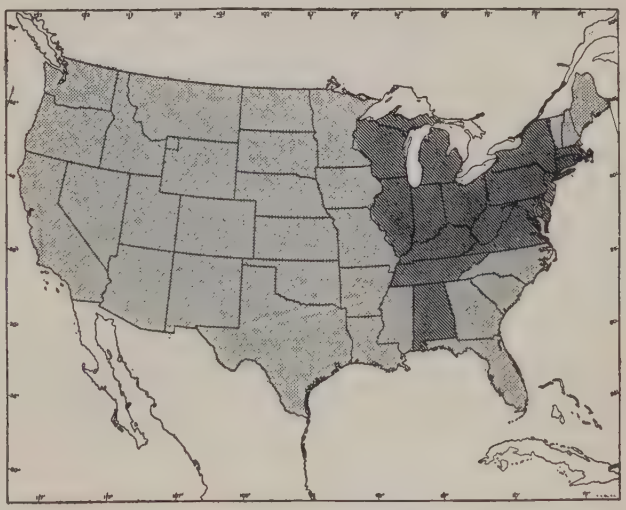
In the making of **iron**, coke and limestone are mixed with the ore. The limestone is used to take out the impurities. The ore, coke, and limestone are put into a **blast furnace**. This is really a great stove shaped like a cylinder. It is made of clay so that it cannot be melted. A fire is made in the furnace and "blasts" of air are forced through holes in the sides of the furnace. The air makes the fire in the furnace intensely hot. The ore melts and the liquid iron sinks to the bottom of the furnace, where it is drawn off into trenches, molded in sand. In each trench the melted ore on cooling forms a bar of iron. These bars are **pig iron**, and are ready to be made into cast iron, wrought iron, and steel. The impurities also are drawn off and after cooling are broken up and carted away as *slag*. When once a blast furnace is started, it is kept going night and day. Materials are put in at the top, and at certain intervals the liquid iron is drawn off at the bottom.



General view of the plant of the Lackawanna Steel Works near Buffalo. A Bessemer furnace in action is shown at the left.

Steel was formerly made from iron by forging and alternate heating and cooling, thus reducing the amount of carbon and hardening the product. In modern times it is made in large quantities by the Bessemer and "open hearth" processes. By the former method from ten to fifteen tons of pig iron are put into a Bessemer furnace and all the carbon or other foreign matter is burned out by blowing air through the molten mass. The color of the flame issuing from the furnace indicates when this process is finished. Hardening materials, consisting of manganese, chromium, nickel, or other metal, are then added and the

whole mass is changed into steel. The furnace is then tilted and the steel is cast into molds. In the open hearth process about fifty tons of pig iron and scrap steel are placed in an open furnace and the surplus carbon is burned out by forcing a mixture of air and gas over the surface. Hardening materials are frequently added, as in the Bessemer process. The open hearth process consumes five or six hours, while for the Bessemer process but twelve or fifteen minutes are required. Bessemer steel was made in 1856, but not in large quantities until 1867, when it began to change the industrial history of the world. It is the chief factor for safety and economy in land and water transportation. The steel rail replaced the iron rail and prepared the way for heavy trains and powerful locomotives. Bessemer began his experiments in order to produce a superior metal for guns. His processes make possible Krupp guns and Dreadnoughts. Bessemer steel was made at Phillipsburg, N. J., by Cooper and Hewitt before the Civil War, and in commercial quantities at Troy, N. Y., at the close of the war. Later Pittsburg became the great center.

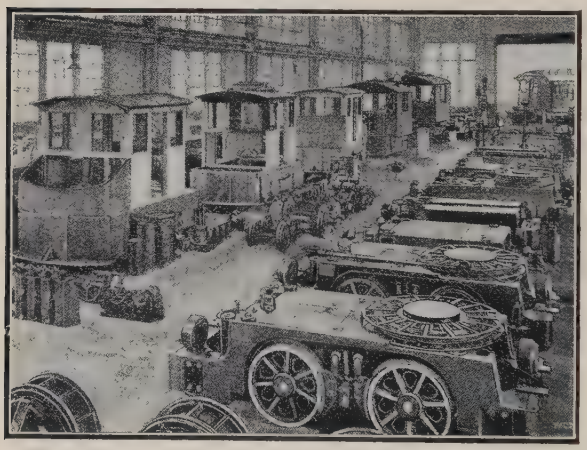


Iron and steel products in the United States. The heavy tint indicates a production of $100 or over to a square mile; the lighter tint, less than $100 production.

Almost every city in easy communication with the coal districts is engaged in iron manufacturing of some sort. Out of the vast variety of products some may be mentioned as of special importance. Considerably more than a hundred **steel ships** are built annually at Philadelphia and at various ports on the lakes. **Wire** and cut **nails** to the amount of half a million tons are made annually. **Structural steel** for bridges, tunnels, trestles, and buildings is one of the most important of modern products. It permits architects to increase the height of buildings, and steel cables in elevators make it possible to reach the upper floors of high buildings without fatigue. In 1867 the five-story building was the ordinary limit of elevation. Now we have fifty-story buildings. As a result the floor area of New York business houses has been increased at least *three fold*. **Steel rails** have done

much to improve transportation, since heavier engines with longer trains can be run. **Forged steel plates** for warships have changed all the navies of the world. **Steel wire** is used in making cables for suspension bridges and for wire rope of various kinds. **Steam boilers, pipe, stoves, furnaces,** and **machinery** for a thousand different uses are made in the mills and shops of the United States to the total annual value of about a billion dollars.

Trade in Iron and Steel. — About one tenth of all the iron and steel goods made in this country is exported, fully one half of it in the form of **machinery.** Sewing-machines, agricultural implements, electrical machinery, typewriters, cash registers, locomotives, and engines are sent to all parts of the civilized world. Next in value are tools and hardware, wire, locks and hinges, and various small articles. Great Britain, Germany, Canada, Mexico, Japan, and the South American republics are the largest purchasers of our iron and steel goods.



Electrical locomotives in process of construction at Schenectady.

Gold and Silver. — These metals are of importance to commerce chiefly from their use as money. They are also used in the manufacturing arts to a great extent, and in the form of money are exported to pay trade balances; that is, the excess value of the imports of any country over its exports. Gold coin is now the **standard money** of most nations. The production of gold varies greatly from year to year. The **Transvaal** now leads the world in gold production, but at different times the **Guinea coast**, **Australia**, **Venezuela**, and **California** have stood first.

Our **chief states** and **territories** producing gold are Colorado, Alaska, California,

and Nevada. These produce about $70,000,000 of our annual product of $90,000,000. Silver and gold are found mainly in rocky veins which are followed by the miner deep into the earth. Though much gold has been found in the beds of streams and in the sands along the seashore, these deposits are soon exhausted, and mining must be resorted to. Gold is always found pure in nature, but silver occurs mixed with copper, lead, sulphur, and other elements. It is extracted by first grinding the ore to powder and then mixing it with water and mercury. The mercury absorbs the silver and is afterward separated from it by heating. The United States and Mexico lead in the production of silver, our annual product averaging about $40,000,000 in value. Silver and gold are both imported into the United States because we sell more goods to foreign nations than we buy of them, and the difference is paid in the precious metals. The manufacturing of silver and gold into various articles of use and ornament is an extensive business in several parts of the country. **Silver-plated** ware is made largely in Connecticut, and watches are made in Massachusetts, New Jersey, and Illinois. Providence, Chicago, Cincinnati, and San Francisco are noted for gold and silver products. We export about a million dollars worth of **jewelry** annually, Canada being our largest buyer; our imports are nearly twice as great as our exports and come mainly from Holland, France, Great Britain, and Germany.

Where gold was first discovered in Colorado near Idaho Springs.

Copper. — The great demand for copper for electrical uses in recent years has led to an enormous increase in its production. In 1914 the world's product was not far from 1,000,000 tons, of which this country yielded two thirds. Other **leading copper countries** are Spain and Portugal, Chile, Australia, and Japan. About half of our own product comes from the Butte region in Montana and from the lake Superior region.

Copper is used to transmit electric power, and in **coinage**, in **sheathing** ships, and in making the important alloys, **brass** and **bronze**. Brass is an alloy of copper and zinc and, next to iron, is the most useful metal known. Bronze is made from

copper and tin and is used in making statues, ornaments, bells, the propeller wheels of ships, and other articles where toughness and durability are desired. Copper in various forms is one of our leading exports and amounts to over $100,000,000 annually; about one third of this amount is imported in the form of ore and bars from Mexico and other American countries.

Aluminium is the most abundant metal known, forming about one fifteenth of the crust of the earth. The great expense of extracting it from its compounds kept the price up for many years to nearly $8 per pound. It was then discovered that it could be obtained from

The entrance to a copper mine in Michigan.

bauxite, a mineral found chiefly in Arkansas, by decomposition in the electric furnace. This discovery brought the price down to eighteen cents a pound, and as a result the production increased from 83 pounds in 1883 to over 80,000,000 pounds in 1914. Aluminum may be used in the place of copper for **electrical conductors** and for the making of **kitchen utensils**. It does not rust, is strong and light, and its uses and value are sure to increase.

Manganese, **nickel**, **cobalt**, and **chromium** are metals used in making especially hard forms of steel for armor plate, turrets, and gun shields. Certain parts of machinery, subjected to great strain,

are made of this kind of steel. **Nickel steel** is used in making heavy engines and for steel rails on sharp curves. Some of these hardening

A zinc mine and works near Joplin, Missouri.

metals are found in the United States, but the larger part of the supply is imported.

Lead comes chiefly from the states that produce silver. Some is exported to Japan and Cuba, but a far larger amount is imported from Mexico, Canada, and Chile. Lead is extensively used in manufacturing **pipe**, **paint**, **type metal**, and **electro-plates** for the printing of books and newspapers.

Zinc, a soft metal resembling lead, is found abundantly in Missouri, Kansas, New Jersey, and Pennsylvania. **Sheet zinc**, an article of common use, and **zinc-white**, a kind of paint, are made from this metal.

Mercury is the only liquid metal. **Cinnabar**, the ore from which it is obtained, is mined chiefly at New Almaden, California; some is found in Texas. The metal is put up in flasks, each weighing 75 pounds. About one third of our product is exported.

Carving a figure on a monument with a compressed air drill.

Building Stone. — The chief forms of stone used in building are

marble, granite, limestone, sandstone, and slate. A continual increase of this product is an indication of the general prosperity of the country. It means the construction of solid buildings and the laying of walks and pavements in our cities as well as the increase of population, wealth, and business.

In the year 1908, 163,087 building permits were issued in fifty of the larger cities of the United States to cost over $550,000,000. The chief stone export is roofing slate, which is sent to Great Britain, Canada, and Australia. Our imports

Molding room in a pottery.

consist of valuable granites and marbles from Great Britain, Italy, and Greece for monuments and ornamental work.

Clay and Clay Products. — Articles made from clay are among the most useful of our manufactures. The annual value of these products is about $250,000,000. Common and ornamental **brick** for the walls and fronts of buildings, vitrified brick for street paving, and drain **tile** make up about two thirds of this amount. Ornamental **terra-cotta**, fancy **tilings**, and the various kinds of **pottery** for the household make up the rest.

The coarser kinds of clay are abundant in nearly every state, but the finer varieties of china clay are found only in Ohio and New Jersey. Trenton and East Liverpool are the chief pottery-making centers. Few of our clay products are exported; the making of the finest ware requires special skill not yet developed in this country. We still bring workmen from foreign countries to perform the more difficult parts of the work. Our imports are many times greater than our exports and come chiefly from Great Britain, Germany, and France.

QUESTIONS AND TOPICS. — (1) What is said of the mineral wealth of the United States? Value of the coal product? Location of the chief coal fields. Name the leading varieties of coal. How are coke and gas obtained? Railroad control of the coal mines. (2) What two countries of the world supply petroleum? How is petroleum obtained? How handled? Trade in petroleum? Leading producing states. (3) How and where is natural gas obtained? For what used? What are the uses of asphalt? Where found? (4) Why is iron the most useful metal? Where found? Where are the richest mines? How is the ore handled? Speak of the location of the iron industries. Describe the manufacture of pig-iron. Of steel. What circumstances have made Pittsburg the center of the greatest iron and steel industries? Name the most important products made of steel. Describe our trade in iron and steel products. (5) Why are gold and silver the most precious metals? What are their chief uses? Name the leading gold countries in order of importance. In what ways are these metals obtained? Location of gold and silver manufactures. Exports and imports of gold and silver. Mining processes. (6) Name some of the uses of copper. What are the leading copper countries? Production of copper. Trade in copper. (7) Describe the production and uses of aluminium. What are the chief metals used for hardening steel? What uses are made of this specially hardened steel? Uses of lead. Where found? Production and uses of zinc. Describe mercury. Where found? Uses. (8) What are the chief forms of building stone? What does a large consumption of building stone indicate as to the progress of the country? Trade in stone. (9) Name some useful articles made of clay. Which of our states lead in clay products? Imports and exports.

AMOUNT AND APPROXIMATE VALUE OF THE CHIEF MINERAL PRODUCTS OF THE UNITED STATES IN 1920

		Values
Coal	636,000,000 tons	$2,000,000,000
Petroleum	444,000,000 bbls	1,360,000,000
Clay		364,000,000
Pig Iron	70,000,000 tons	291,000,000
Copper	605,000 tons	223,000,000
Cement	97,000,000 bbls.	195,000,000
Natural Gas	735,000,000 cu. ft.	162,000,000
Stone	68,500,000 tons	121,000,000
Lead	477,000 tons	76,000,000
Zinc	450,000 tons	73,000,000
Sand	78,000,000 tons	62,000,000
Silver	57,000,000 oz.	57,000,000
Gold	2,395,000 oz.	50,000,000
Lime	3,350,000 tons	34,000,000
Phosphate Rock	4,000,000 tons	25,000,000
Salt	7,000,000 tons	31,000,000
Sulphur	1,500,000 lbs.	30,000,000
Mineral Waters	40,000,000 gals.	5,000,000
All Minerals		Approximately $5,000,000,000

CHAPTER VII

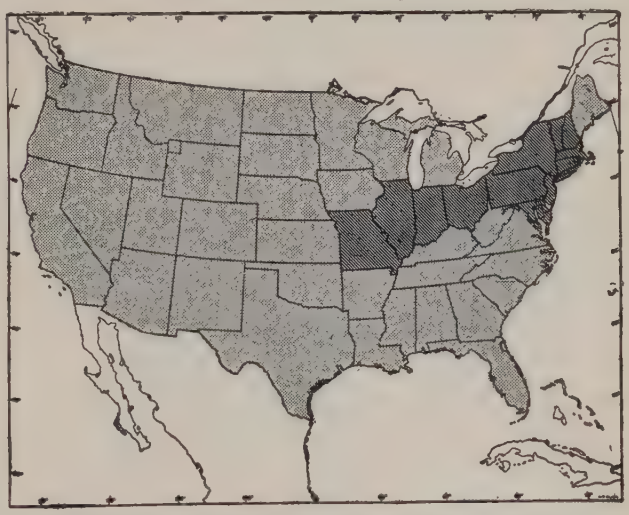
TRANSPORTATION, MANUFACTURES, AND COMMERCE

Growth of Manufactures.—The United States is far in the lead among the manufacturing countries of the world. Its **products** are probably equal in value to-day to those of all the rest of the world combined. From 1860 to 1900 the **value** of our manufactured products increased from two billions to thirteen billions of dollars. From 1900 to 1910 they increased seven billions more, and from 1910 to 1920, the increase amounted to forty billions or over 200 per cent. The following table gives the value of our chief manufactured products in 1920 when the official Census was taken.

Iron and Steel	$ 9,403,634,265	Copper Smelting & Refining	651,101,591
Slaughtering and Meat-Packing	4,246,290,614	Confectionery & Ice Cream	637,209,168
Flour Mill and Grist Mill Products	2,952,434,385	Furniture and Refrigerators	597,405,141
Automobiles	2,387,903,287	Cottonseed Oil and Cake	581,244,798
Foundry and Machine Shop Products	2,289,250,859	Cars for Steam Railroads	538,222,831
Cotton Goods	2,125,272,193	Brass and Bronze	482,312,790
Printing and Publishing	1,699,789,229	Engines — All Kinds	464,774,735
Petroleum Refining	1,632,532,766	Chemicals	438,658,869
Steel Ships	1,456,489,516	Canned Fruits & Vegetables	402,242,972
Lumber & Timber Products	1,387,471,413	Gas —Illuminating & Heating	329,278,908
Railroad Const. & Repairs	1,354,446,094	Dyeing & Finishing Textiles	323,967,683
Women's Clothing	1,208,543,128	Soaps	316,740,115
Men's Clothing	1,162,985,633	Agricultural Implements	304,961,265
Boots, Shoes & Findings	1,155,041,436	Coffee and Spice Roasting	304,791,677
Bread & Bakery Products	1,151,896,318	Fertilizers	281,143,587
Woolen, Worsted & Felt Goods	1,104,673,612	Bags — All Kinds	267,323,464
Butter, Cheese & Condensed Milk	1,066,125,489	Glass	261,884,080
Tobacco Manufactures	1,012,933,213	Paints	256,714,379
Electrical Machinery	997,968,119	Coke	216,515,838
Leather	928,591,701	Jewelry	203,939,230
Paper & Woodpulp	788,059,377	Smelting & Refining Lead	196,794,519
Knit Goods	713,139,689		
Silk Goods	688,469,523		
Total Value All Products			$62,418,078,773
" " " "		in 1910	20,672,951,870

Location of Industries.—It has been mentioned that the location of manufacturing industries is dependent mainly on the convenience of raw materials and transportation. Thus the **iron** and

steel manufactures of the country are located in western Pennsylvania and along the Great Lakes (see *page* 91). The products included under this head are of great variety (see *page* 93). Included under the second head in the above list are cast iron products of every sort and all classes of machinery except sewing-machines, typewriters, and a few other special products. It includes steam engines and boilers, locomotives, and all machinery used in mills and factories except the classes mentioned. The number of foundries and machine shops is far greater than that of the plants manufacturing more bulky products comprehended under iron and steel. Our larger cities are extensively engaged in these industries on account of the market that they afford for the products.

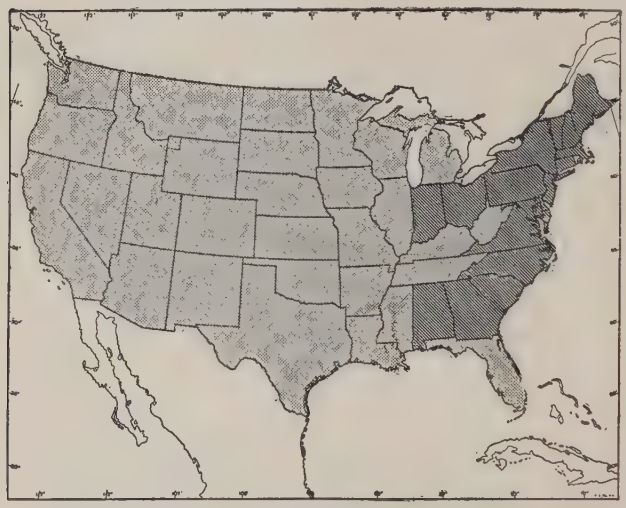


Manufactures of clothing in the United States. The heavy tint indicates a production of $100 or over to a square mile; the lighter tint, less than $100 production.

The **slaughtering** and **meat-packing** industry is necessarily located near the districts where the animals are raised and fattened (see *page* 82). **Woolen textiles** include worsteds, felt goods, hosiery and knit goods, and fur hats. Cotton textiles include muslins, dress goods, as well as hosiery and knit goods. The chief products included under silk are cloth, ribbons, and thread. Our linen manufactures are not of great importance on account of the labor involved in the preparation of the raw materials. The location of textile industries depends more upon the convenience and cheapness of providing power and labor than it does upon transportation and the convenience of

materials. Lowell, Providence, Philadelphia, Hartford, New York City, and Yonkers are the leading cities engaged in woolen industries. The chief center of hat making is Danbury in Connecticut. The other products named in the table that require explanation are considered in the chapters on productions.

Great Industrial Centers.—It is true in general that the industries of any given place are confined to a limited number of products, for the production of which it has special advantages. But some of our larger cities combine so many advantages that they have become vast industrial centers, producing a variety of products.



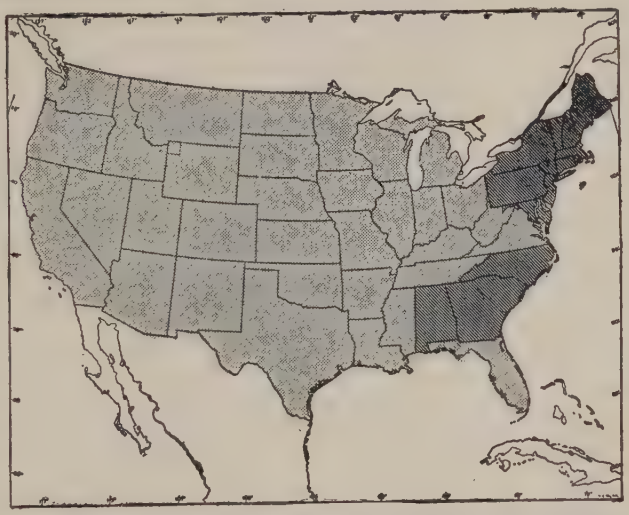
Textile goods in the United States. The heavy tint indicates a production of $100 or over to a square mile; the lighter tint, less than $100 production.

In the neighborhood of these cities are dozens of smaller towns, which share their advantages and engage in similar industries. Although they may be located in different states and have separate municipal governments, such an aggregation of towns really forms a single industrial community; certain sections will be devoted to manufactures, others to trade, while the more remote districts will be chiefly residential.

Local Transportation. — No influence has been more effective in promoting industrial growth than the improvements in local transit facilities. **Electric** and **steam** railways bring all parts of these scattered communities into close relation. All classes of workers may now, without inconvenience, have homes a dozen miles or more

from their places of occupation. One result of this improved transportation has been to bring about an enormous increase in **manufactures** without a proportionate increase in **population**.

For example, from 1900 to 1905 the population of New York City increased about 16 per cent, while its manufactures increased 32 per cent. During the same period Boston gained 8 per cent in population and 29 per cent in manufactures. Buffalo gained 10 per cent in population and nearly 50 per cent in manufactures. All our large cities show the same tendency. Improved transportation has made it possible to utilize a larger proportion of the available labor of the community than formerly. It has also tended to consolidate manufacturing industries in the large centers and to increase their population at the expense of the rural districts. From 1910 to 1920 our population increased about 15,000,000, and about half of this increase is credited to our cities.



Cotton goods in the United States. The heavy tint indicates a production of $100 or over to a square mile; the lighter tint, less than $100 production.

The twenty-five leading manufacturing cities of the United States are given in the table on the following pages. By comparing this table with the one shown on page 100 it will be noticed that the total manufactures of these cities amounts to more than one third of the total for the United States. The table gives the largest industries for each city, and the numbers in parentheses show the value of each product in million dollars. The last column of the table gives the value of all the manufactured products of each city. How does the rank of these cities in population compare with their rank in manufactories?

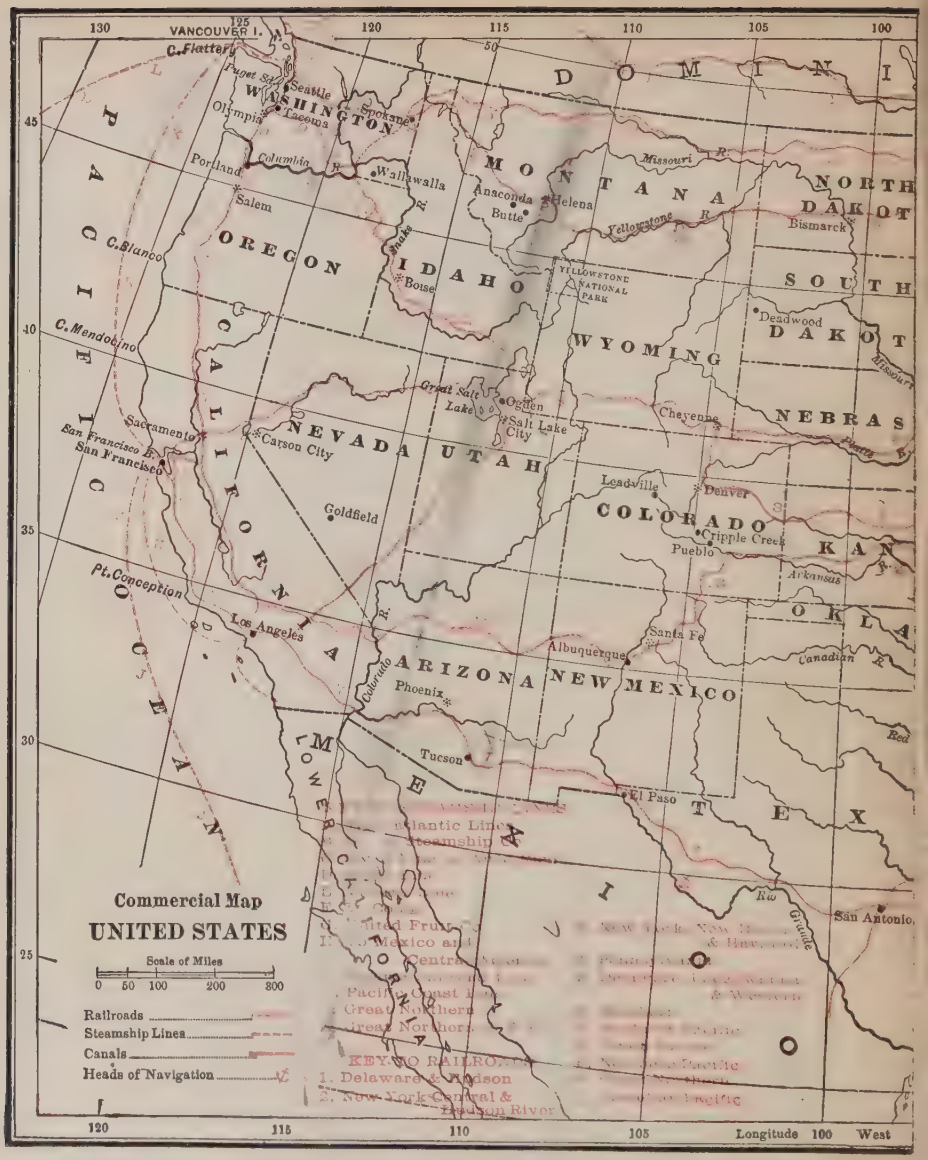
Cities	Value of Leading Manufactures in Million Dollars (Census of 1910) Note.—The census reports for 1920 are not yet available.	Value of all Industries
New York	Clothing (485), Printing (184), Meat-Packing (96), Castings and Machines (64), Tobacco Products (62), Bakery Products (62), Malt Liquors (53), Millinery and Lace (51), Fur Goods (40), Gas (34)	$2,029,693,000
Chicago	Meat-Packing (325), Clothing (101), Castings and Machines (90), Printing (74), Iron and Steel (46)	1,281,171,000
Philadelphia	Clothing (59), Woolen Goods (55), Printing (46), Castings and Machines (39), Knit Goods (24), Leather (24)	746,076,000
St. Louis	Boots and Shoes (34), Meat-Packing (27), Malt Liquors (23), Printing (17), Castings and Machines (15)	328,495,000
Cleveland	Castings and Machines (41), Iron and Steel (38), Automobiles (21), Clothing (19), Meat-Packing (17)	271,961,000
Detroit	Automobiles (60), Castings and Machines, (18) Packing (13), Tobacco (12), Brass and Bronze (12)	252,992,000
Pittsburgh	Iron and Steel (102), Castings and Machines (21), Meat-Packing (13), Printing (9)	243,454,000
Boston	Printing (28), Boots and Shoes (26), Clothing (22), Castings and Machines (13), Confectionery (10)	237,457,000
Buffalo	Meat-Packing (25), Castings and Machines (21), Flour and Mill Products (20), Automobiles (10), Soap (9)	218,804,000
Milwaukee	Leather (27), Malt Liquors (19), Castings and Machines (18), Flour and Mill Products (17), Boots and Shoes (7)	208,324,000
Newark	Leather (19), Castings and Machines (15), Jewelry (13), Malt Liquors (12), Paint and Varnish (7)	202,512,000
Cincinnati	Clothing (20), Meat-Packing (19), Castings and Machines (18), Boots and Shoes (15), Printing (12)	194,516,000
Baltimore	Clothing (41), Copper, Tin, and Sheet Iron (13), Tobacco (10), Meat-Packing (10), Castings and Machines (9)	186,978,000
Minneapolis	Flour and Mill Products (79), Lumber Products (12), Castings and Machines (7), Printing (6), Cars (4)	165,405,000
Kansas City, Kan.	Meat-Packing (148)	164,081,000
San Francisco	Printing (12), Castings and Machines (10), Meat-Packing (10), Coffee and Spices (5)	133,041,000
Jersey City	Meat-Packing (22), Tobacco (11), Castings and Machines (5), Cars (3)	128,775,000
Indianapolis	Meat-Packing (39), Castings and Machines (11), Automobiles (9), Flour and Mill Products (6), Printing (6)	126,522,000
Providence	Woolen Goods (30), Jewelry (20), Castings and Machines (14), Silverware (6), Gold and Silver (4)	120,241,000

Rochester	Clothing (19), Boots and Shoes (13), Castings and Machines (5), Printing (6), Flour and Mill Products (3)	112,676,000
Louisville	Tobacco (16), Distilled Liquors (10), Castings and Machines (7), Flour and Mill Products (7), Meat-Packing (5)	101,234,000
South Omaha	Meat-Packing (92)	92,436,000
Youngstown	Iron and Steel (50), Castings and Machines (5)	81,271,000
Lawrence	Woolen Goods (59), Cottons (7)	79,993,000
New Orleans	Bags other than Paper (5), Rice Cleaning (5), Lumber Products (4), Printing (3)	78,794,000
	Total for Twenty-Five Cities	$7,786,902,000

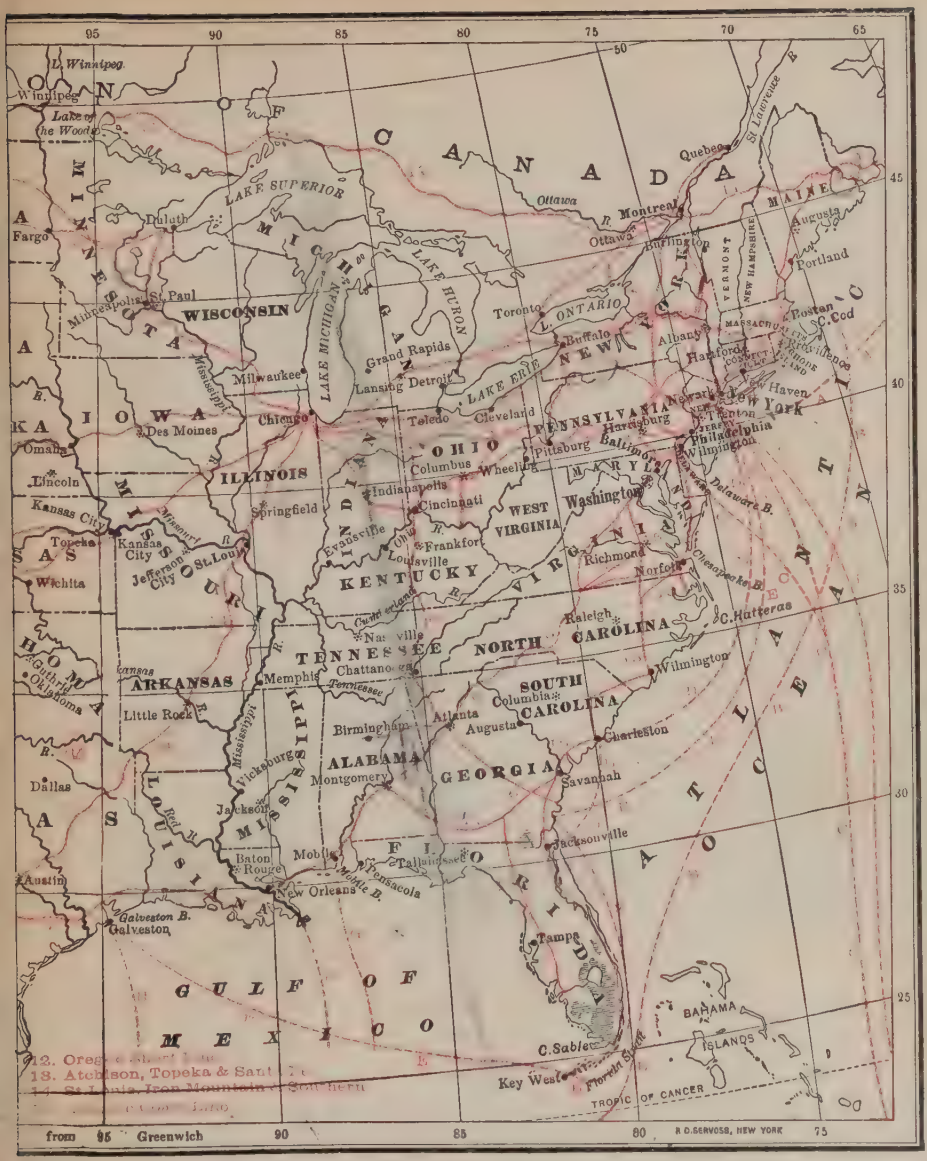
Internal Transportation. — The United States contained in 1920 about 2,500,000 miles of public **highways**, 250,000 miles of **railways**, besides **canals** and **rivers** which afford over 25,000 miles of navigable water ways. Many of the public highways are hard macadam roads, built by the state and municipal governments. The greater number, however, are ordinary dirt roads which are of little use in bad weather. Good highways are of vast importance, because they must be used for transporting nearly all the country's products for a longer or shorter distance. The farmer especially is dependent upon them. Most large **manufacturing** establishments are connected directly with the railroads or with navigable waters and hence make no use of the public highways.

The great bulk of our freight, especially the **crops**, is carried by railroads from the centers of production to the manufacturing cities and seaports. The railroad companies of the United States have in operation about 2,500,000 freight cars, with a carrying capacity averaging 35 tons each. If each of these cars should deliver one load of freight per month, the total amount carried would be approximately 1,000,000,000 tons. Heavy commodities, especially coal, iron ore, lumber, grain, and cotton, are transported by water whenever practicable. It is estimated that 230,000,000 tons of freight are carried annually on our navigable rivers, lakes, and canals. About 3,000,000 motor cars are now licensed in the United States.

Movement of Products. — The most striking fact in regard to our domestic transportation is the interchange of products between the older and newer parts of the country. The **grain**, domestic **animals**, **wool**, and **metals** of the West are sent eastward, and manufactured goods of every description westward. The **cotton** and **lumber**



MAP STUDIES. — (1) How many railroads are shown on this map? (2) Which of these are east of the Mississippi river? (3) Which are in the Atlantic or Gulf coast plains? (4) Name those that cross the great plains. (5) What railroads lead to the Pacific coast? (6) Name five cities east of the Mississippi, and name a railroad leading to each; five west of the Mississippi. (7) What railroads enter Boston? New York? Chicago? Cincinnati? St. Paul? St. Louis? Denver? Kansas City? Seattle? San Francisco? (8) By what railroads could you travel from New York to San Francisco? From New York to New Orleans? Chicago to Seattle? New Orleans to Salt Lake City? (9) Name the railroads crossing each of the following states:



12. Oreg
13. Atchison, Topeka & San
14. St. Louis, Iron Mountain & Southern

Maine: New York: Pennsylvania: Ohio: Illinois; Indiana: Maryland: Missouri; Texas; Nebraska; Utah: Iowa; Louisana; Wyoming; Nevada. (10) Make a list of states crossed by the following railroads: New York Central railroad; Delaware and Hudson railroad; Pennsylvania railroad; New York, New Haven and Hartford railroad; Southern railroad; Southern Pacific railroad; Union Pacific railroad. (11) What products can you name that might be shipped from each of these states? (12) Name some of the leading seaports of the United States; and one or more lines of steamships entering each. What can you tell about the products carried by each of these lines?

of the South also are sent north in exchange for manufactured goods. **Coal** is brought by rail or canal to the seaboard, and thence to the cities along the coast. Much of it is distributed by way of the Ohio and Mississippi rivers, and by way of the Great Lakes. **Iron ore** also is carried mainly by lake steamers. Lumber is brought from the Southern states by water to all northern ports. A vast amount comes from Canada by way of the canals and the Hudson river to New York. The lumber of the Mississippi valley is distributed mainly by means of that system of rivers. The forests bordering the Great Lakes supply lumber for the markets of Chicago, Detroit, and other cities along the lake shores. The lumber of the Pacific coast is shipped eastward by rail, or in the steamships to Pacific ports, and around cape Horn.

The Coasting Trade.—The coast trade of the United States is

A view of the docks at Seattle, showing the Minnesota and Dakota, two of the largest ocean steamships plying between Seattle and the ports of eastern Asia.

larger than that of any other country. According to law it is entirely carried by American vessels. The trade between the North and South is largely carried by sea. Both steam and sailing vessels are employed. Cotton, lumber, and naval stores, as well as fruits and vegetables which are not perishable, are brought from southern to northern ports. Manufactured iron and steel, dry goods, groceries, machinery, and various food products move in the opposite direction.

Each seaport has its characteristic commerce, which will be noted in the accounts of the several states. There is also a large coast trade between the ports of New

England and those of the states further south. Much of this passes through New York bay and Long Island sound. It consists largely, in the eastward movement, of cotton, wool, leather, flour, meat, and other raw materials and foods, and in the return movement, of the products of New England factories.

Foreign Commerce. — The foreign commerce of the United States is insignificant in comparison with its domestic trade. The greater part of it is carried on by ocean steamers, but a considerable amount of goods passes to and from the countries on our borders by railroad. Of our ocean commerce about one twelfth is carried in American vessels and the rest mainly by British, French, German, and Norwegian vessels.

The total value of our foreign commerce is about $3,000,000,000 annually. Of this amount about one half consists of exchanges with the various countries of Europe. Second in value is our trade with North American countries. Following in order is our trade with South America, Asia, Oceania, and Africa. Our trade with Europe consists mainly in the exchange of raw materials and foods for manufactured goods. With the other continents, on the contrary, our sales consist mainly of manufactures and our purchases of raw materials.

QUESTIONS AND TOPICS. — (1) How do the manufactures of the United States compare in value with those of Great Britain or Germany? (2) Name the five leading classes of manufactures. (3) What is meant by foundry products? (4) What do woolen textiles include? Cotton textiles? (5) What cities lead in woolen industries? (6) Explain how local transportation facilities help to build up great industrial centers. (7) Name the thirteen leading industrial centers of the United States. (8) Mention some products of each of the above centers and explain what advantages the city has for their manufacture. (9) What is said of the usefulness of public highways? (10) What about the freight carried by railroads? (11) When is water transportation most advantageous? (12) Describe the movement of grain, cotton, lumber, coal, and iron ore in our domestic commerce. (13) What is said of the coasting trade? (14) What exchange of products between the North and South is mentioned? (15) Foreign commerce compared with domestic commerce. (16) Describe our trade with each continent.

TABLES SHOWING THE FOREIGN TRADE OF THE UNITED STATES

(The Countries and Seaports are Arranged according to the Value of their Trade)

Leading Exports of the United States	Value 1920	Leading Countries to which Sent	Leading Ports and Districts from which Sent
Raw Cotton	$1,136,408,916	Gt. Brit., Germ., France, Italy, Sp. Jap..	Galveston, New Orl., Savannah, N. Y.
Iron and Steel	1,112,835,237	Gt. Brit., Germ., Mexico, Canada	N. Y., Buffalo, Cuyahoga, Detroit.
Breadstuffs	1,079,107,701	Gt. Brit., Germ., France, Belg., Holl.	N. Y., Balt., Galv'n., New Orleans.
Petroleum	549,357,212	Gt. Brit., Germ., Holland, Belgium	N. Y., Phila., Delaware, Baltimore.
Meat and Dairy Products	544,074,060	Gt. Brit., Germ., France, Belgium	N. Y., Boston, Baltimore, Phila.
Mfd. Cotton	402,041,277	China, Canada, West Indies	N. Y., N. and S. Dakota, Boston.
Cars and Vehicles	382,207,667	Gt. Brit., Mex., Can., W. Indies, Japan	New York, El Paso, Detroit.
Coal	349,811,341	Canada, Mexico, Cuba	Buffalo, Cuyahoga, Niagara, Oswego.
Tobacco	288,693,799	Great Britain, Germ., Italy, France	New York, Baltimore, New Orleans.
Leather	190,318,659	Great Britain, Australasia, Canada	New York, Boston.
Timber, Lumber and Furniture	186,502,152	Gt. Brit., Germ., Canada, W. Indies	New York, Pensacola, New Orleans.
Chemicals, Drugs and Dyes	168,999,706	Gt. Brit., Mexico, Canada, Germ., Italy	New York, Boston, San Francisco.
Copper	133,429,272	Gt. Britain, Germany, France, Holland	New York, Baltimore, Philadelphia.
Electrical Machinery	101,990,004	South America	New York.
Sugar and Molasses	100,138,702	England, France	New York, New Orleans
Paper	89,072,289	Can., Cuba	New York.
Rubber Goods	85,436,807	Gt. Brit., Cuba	New York.
Fruits and Nuts	84,390,424	Gt. Britain, Germany, Canada, France	New York, San Francisco.
Agricultural Implements	46,277,638	Fr., Can., Rus., Argent., Germ., Gt. Brit.	New York, N. and S. Dakota, New Orl.
Fertilizers	36,555,812	Cuba, Japan	New York.
Naval Stores	34,503,389	Gt. Brit., Belg., Germany, Netherlands	Fernandina, Savannah.
Live Animals	18,332,960	Great Britain, Cuba	New York, Boston, Baltimore, Phila.
Cottonseed Products	18,011,549	Gt. Brit., Germ., Neth., France, Belg.	New Orleans, Galveston.
Total Exports	$8,080,480,821		
Total Imports	5,278,481,490		
Balance of Trade favor of U.S.A.	$2,801,999,331		

QUESTIONS ON EXPORTS AND IMPORTS. — (1) Name our four largest exports. (2) Which of our ports ships the most cotton? (3) Which country buys the most cotton? (4) In what other products is Great Britain our best customer? (5) What countries buy coal and coke from the United States? (6) What countries buy our agricultural implements? (7) What is exported from Fernandina and Savannah? From Buffalo? (8) Name our two largest imports. (9) Which country sends us the most of each? (10) Where do we obtain raw fiber? Raw cotton? Raw silks? (11) Which country sells us india-rubber? Wool? Tea? Copper? Hides and skins? Tin? (12) Name some articles that are both exported and imported. How can this be explained in each case? (13) What is the excess of our exports over our imports (balance of trade)?

Leading Imports of the United States	Value 1920	Leading Countries from which Obtained	Leading Ports and Districts at which Entered
Raw Sugar	$1,017,163,456	Cuba, Java, Hawaiian Isl., Germany	New York, Phila., New Orl., Boston.
Raw Silk	301,038,193	Japan, China, Italy, France	Oswegatchie, S. Fran., N. Y., Puget Sd.
Coffee	252,450,051	Brazil, Colom., Vene., Guatemala, Mex.	N. Y., New Orl., San Fran., Baltimore
Rubber and Gutta Percha	248,900,217	Brazil, Congo State, E. I., African Col's.	New York, Boston.
Hides and Skins	243,877,740	India, Argentine, Russia, France	New York, Boston, Philadelphia.
Chemicals, Drugs and Dyes	211,528,099	Chile, Germany, Gt. Brit., India	N. Y., Phila., San Fran., Boston.
Wood, Articles of	209,031,235	Can., Centl. America, E. Indies, Norw.	N. Y., Champlain, Oswegatchie, Huron.
Cotton Mfd	187,431,814	Gt. Brit., Germ., Switzerland, France	New York, Chicago, Boston.
Fiber Mfd	153,665,719	Gt. Brit., Germany, Belgium, France	N. Y., Boston, New Orleans, Phila.
Raw Cotton	138,743,702	Egypt, Peru	Boston, New York.
Wool and Hair	126,972,088	Australasia, Argentina, Russia, Turkey	Boston, New York, Philadelphia.
Breadstuffs	125,345,323	Canada, Argentina	New York, San Francisco.
Fruits and Nuts	116,221,857	Italy, Central America, W. Indies, Spain	N. Y., New Orl., Boston, Mobile.
Tin	92,581,927	Str. S'tlem'ts, Malay States, Dutch E. I.	N. Y., San Fran., Phila., Boston.
Furs	84,427,592	Gt. Britain, Germ , France, Belgium	New York.
Leaf Tobacco	81,630,011	Cuba, Sumatra, Germany, Turkey	N. Y., Tampa, Phila., Chicago.
Raw Fibre	80,377,470	Mexico, Philippines, India	N. Y., Boston, New Orl., Mobile.
Silk Mfd	75,327,914	France, Germ., Japan, Switzerland	New York, Philadelphia.
Copper	68,128,240	Mexico, Canada, Great Britain	Arizona, Perth Amboy, Balti., N. Y.
Wool Mfd	58,117,537	Great Britain, France, Germany	New York, Boston, Philadelphia.
Cacao	54,307,908	South America	New York.
Iron and Steel	50,305,603	Great B.itain, Germany, Belgium	New York, Boston, Philadelphia.
Leather Goods	36,333,858	Great Britain, Germany, France	New York, Boston.
Animals	31,552,223	Canada, Mexico	Buffalo, Duluth.
Art Work	28,678,604	France, England, Italy	New York.
Tea	24,392,527	Japan, China, British India	New York, San Fran., Chicago, Boston.
Total	$5,278,481,490		

CHAPTER VIII

THE NORTH ATLANTIC STATES

Answer the questions under the MAP, *page* 114.

Location and Surface. — The North Atlantic states lie partly in the Atlantic slope and partly in the mountain and plateau regions of the Appalachian mountain system. This system crosses them from northeast to southwest, taking the form of irregular ridges and groups in the northeastern part and of parallel but broken ranges in southern New York, New Jersey, and Pennsylvania. In New York the Hudson river has cut a deep valley through them. The Hudson and Champlain valleys together form a continuous lowland across this group, separating **New England** from the remaining states. In Maine the Appalachians consist of low ranges of hills with scattered mountain peaks culminating in **mount Katahdin**, about a mile in height. New Hampshire contains the White mountains, the most picturesque group of the system. The **Green mountains** of Vermont consist of low wooded ranges, famed for marble, slate, and granite.

States	Area, Sq. Miles	Population Census of 1920	Capital	Chief City	Population 1920
Maine	33,040	768,014	Augusta	Portland	69,196
New Hampshire	9,341	443,083	Concord	Manchester	78,384
Vermont	1,564	352,428	Montpelier	Burlington	22,779
Massachusetts	8,266	3,852,356	Boston	Boston	748,060
Rhode Island	1,248	604,397	Providence	Providence	237,595
Connecticut	4,965	1,380,631	Hartford	New Haven	162,537
New York	49,204	10,384,829	Albany	New York	5,620,048
New Jersey	8,224	3,155,900	Trenton	Newark	414,216
Pennsylvania	45,126	8,720,017	Harrisburg	Philadelphia	1,823,158

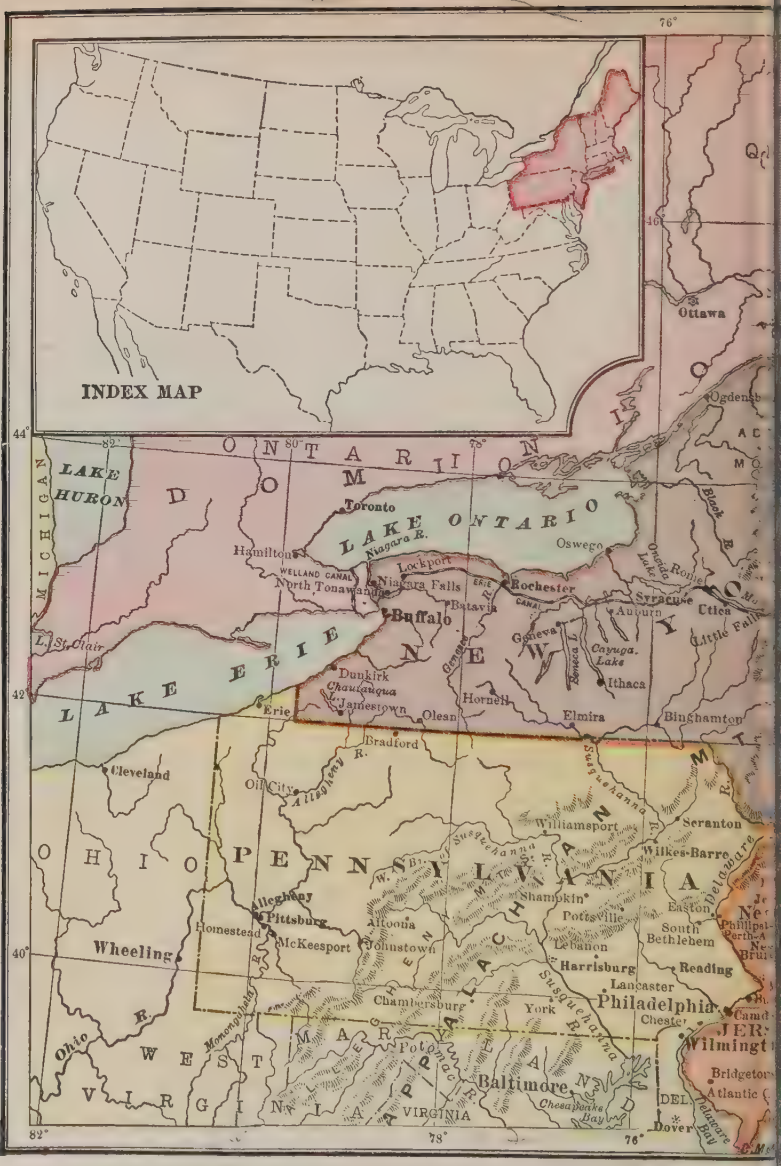
The surface of New England generally consists of a **low plateau** from which rise mountains, ridges, groups, and scattered peaks. Both plateau and mountains are the remains of an ancient highland system which was worn down almost to the sea level and was afterwards raised to its present height. Into this plateau, which is underlaid with hard rocks, the streams have cut narrow valleys, which sometimes consist of successive **terraces** indicating corresponding stages in the rising of the land. Many of the streams were dammed or turned out of their courses by the glacier which overspread the country after it was elevated (see *page* 17), resulting in the formation of lakes, falls, and rapids. The plateau was largely denuded of **soil** by the moving ice, and is now but thinly covered on account of the slow decay of the hard, underlying rocks.

The Palisades on the banks of the Hudson river.

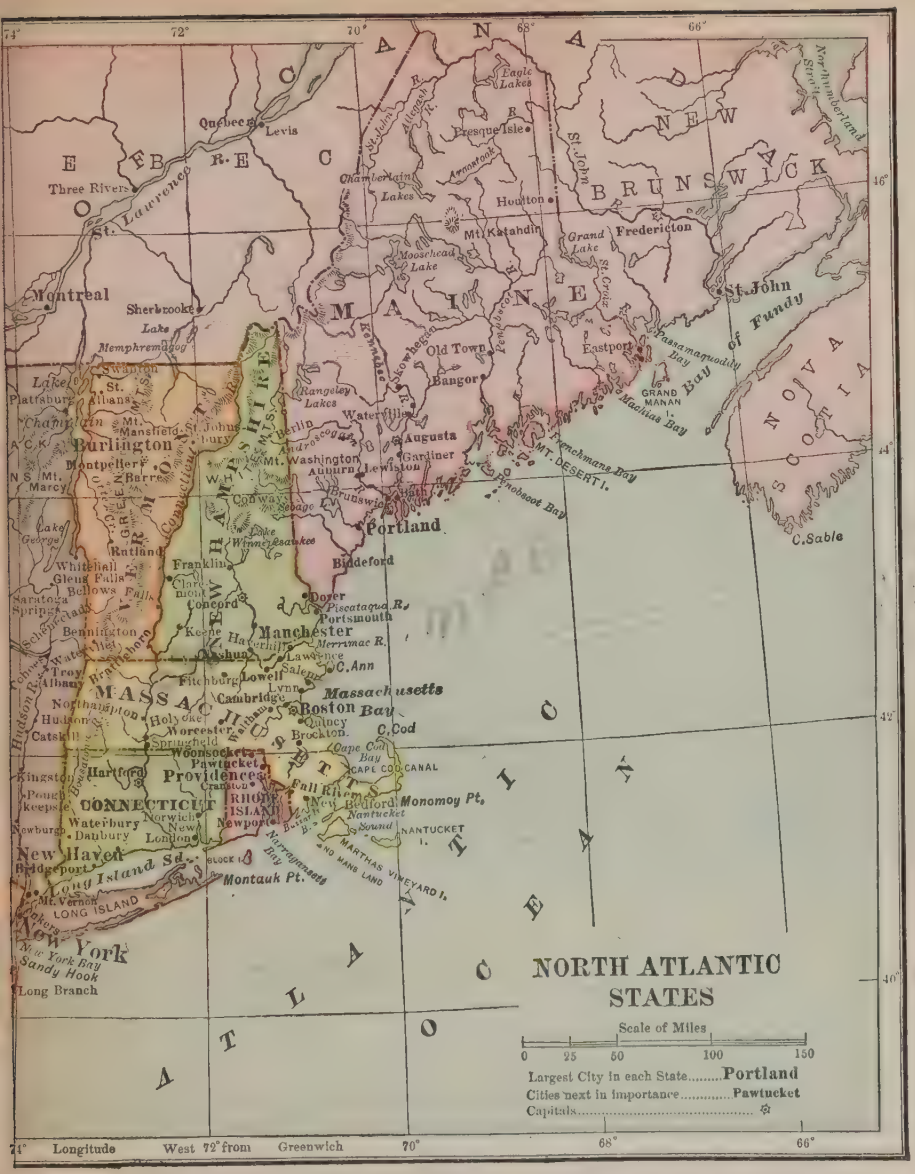
New York contains the **Adirondack** group, with its forests and lakes abounding in game and fish, and the **Catskills**, which, overlooking the valleys of the Hudson river and of central New York, attract thousands of visitors during the summer. In Pennsylvania the **Blue Ridge** and **Allegheny** are the chief ranges. Southern New York and northern Pennsylvania belong to the **Allegheny plateau**. This section is divided into two slopes by a ridge of land which may be traced on the map between the headwaters of the rivers. Everywhere the mountains of this group of states are worn and rounded and covered with soil; they are thickly wooded with varieties of both hard and soft wood trees which furnish the basis of numerous industries.

The parts of New York, New Jersey, and Pennsylvania east of the Appalachian ridge belong to the Piedmont belt and the Atlantic coast plain. This section is a fertile farming, gardening, and fruit-growing region.

Climate. — The New England states and the parts of the other states of this group that lie remote from the ocean have a temperate



MAP STUDIES FOR THE GROUP. — (1) In what part of the United Sta this group? What parallel crosses the northern part of Maine? The southern p Pennsylvania? What meridians do you find near the eastern and western b aries? (2) What country and waters on the north? What are the boundari the south? (3) What six bays along the coast? What sound? What islands? lakes do you find on the borders? In the interior? (4) What mountains cross states? Trace the ridge which divides them into two slopes. (5) On an o map of the group locate the chief mountains, rivers, lakes, and cities.



MAP STUDIES FOR EACH STATE. — (1) What water boundaries has this state? (2) What states or countries border it? (3) What mountains, rivers, or lakes does it contain? (4) What canals or railroads cross it? (5) What is the latitude of its largest city? (6) What is the time at this city when it is 12 o'clock noon at New York? (7) How does this state compare with your state in size and population? (8) Through what seaport is the commerce of this state carried on? (9) Name the routes by which goods are sent to this port. (10) On an outline map of this group of states insert the names of the capital, the chief cities, and the boundaries of this state.

climate with cold winters and hot summers. The snowfall is usually heavy in winter, and there is an abundance of moisture well distributed throughout the year. The coast lands, from Long Island to the southern end of New Jersey, have a more equable climate and a heavier rainfall than the interior. Snowfalls are frequent in winter, but are usually followed quickly by a rising temperature and rain. The winds are extremely variable. The prevailing direction in winter is from the north and northwest; in summer from the south to southeast and east. The cold Labrador current influences the climate of the northern part

View of lake Champlain from the Vermont shore. A summer hotel is built on the point of land.

of the coast, and cold winds and storms from the northeast are common, especially in winter. Rains are usually brought by the southeast winds which have passed over the warm waters of the Gulf Stream.

The Coast Line. — The coast of the North Atlantic states is deeply **indented** as a result of a general subsidence of the land in ancient times. The northern half of it is most irregular, and thousands of islands, capes, and headlands add to its picturesqueness and irregularity. A narrow coast plain borders the ocean, increasing in width toward the south, where it includes Long Island and a large part of the state of New Jersey.

The indentations of the **Maine coast** are so deep that if one were to travel from Eastport to Portland, following its windings, he would have to go ten times as far as if he should travel in an air line. While this sunken coast affords many excellent harbors, there are numerous hidden rocks and dangerous headlands on which many storm-driven vessels are wrecked every year; at hundreds of such places the Government has erected light-houses and danger signals to warn the mariner. Careful charts are made of the waters near the coast, giving the depth at frequent intervals. In spite of the work of the United States Coast Survey, these sunken rocks often escape notice until struck by some vessel. One of these hidden rocks wrecked the cruiser *Brooklyn* in Buzzards bay in 1902.

Industries. — The chief industries of this group of states are

A view on the coast of Maine. Entrance to Bar Harbor.

manufacturing, **commerce**, **agriculture**, **mining** and **quarrying**, **lumbering**, and **fishing**. The manufactures of the New England section consist largely of cotton and woolen goods, leather goods, paper, and metal goods in endless variety. The manufactured products of the remaining states are chiefly iron and steel goods, clothing, textiles, lumber products, and a great variety of metal goods. About two thirds of the entire foreign commerce of the United States is carried on through the great seaports of New York, Philadelphia, and Boston, which are also the chief cities of this group of states. The chief farming states of this section are New York, Pennsylvania, and New Jersey, and their leading products are grain and fruits, tobacco, dairy and garden products. In New England, garden products, fruits, dairy products, and potatoes are of greatest importance. The

leading mineral products are coal, iron, salt, and building stone. Along the northern border of the group are located the lumbering and related industries. The most valuable fisheries are off the New

A New England farm and farmhouse. The Green mountains in the distance.

England coast. Cod, herring, mackerel, and lobsters are the chief varieties of fish taken. Oysters and clams are most abundant on the coast of New York and New Jersey.

QUESTIONS AND TOPICS. — (1) Location of this group. Describe the Appalachian mountain system. What valley separates New England from the remaining states? Name the chief mountain groups and ranges found in these states. (2) Climate of the interior. Of the coast lands. What is said of the winds and rainfall? Describe the coast line of the northern section. Of the southern section. Work of the Coast Survey. (3) Seven leading industries of this group. Describe the manufactures of each section. What is said of commerce? Farm products? Mineral products? Fisheries?

MAINE

Answer the questions under the MAP, *page* 115.

General Features. — Maine is noted for its many lakes and streams, its extensive **forests** of pine, and its rugged and irregular coast with multitudes of picturesque islands, bays, and inlets. Its pine forests long ago gave Maine the name of the "Pine Tree State"; but the best of these forests have been cut, and spruce and other woods have taken their places.

In the **colonial days** people made a business of cutting the finest trees for the masts of ships and sending them to England. The king had the best trees reserved

to make masts for his navy. For many years the building of wooden ships gave employment to thousands of ship-builders. Now so many ships are built of steel that there is little demand for wooden vessels, except those of small size. In the summer many people visit the forests or camp out along the beautiful lakes to hunt and fish. The coast of Maine also, with its islands and inlets, has many noted summer resorts.

Lumbering. — During the winter, gangs of lumbermen camp in the woods and spend the season in cutting and hauling logs. Many of the logs are floated down the Penobscot river to the city of Bangor,

A beaver house in the forests of Maine.

where they are sawed into **lumber** or made into wood-pulp. Bangor is one of the largest lumber markets in our country.

In making **wood-pulp** the wood is either cut into small pieces or ground to dust by being pressed against a revolving stone. It is then put into vats with coloring matter and other materials, and becomes known as pulp. The pulp is dried on wire cloth and then rolled out into sheets. By far the greater part of all the paper used in printing books and newspapers is made from wood. All the waste of the forests, such as branches, crooked logs, and sawdust, can be used for making paper.

Other Industries. — The southern part of the state is cleared land, and the people are mostly engaged in **farming**. Hay and potatoes are the largest crops; corn, oats, and apples are grown. The

dairies produce much butter and cheese. **Herring** and **cod** are caught along the shore and are cured and packed for market. Millions of small herring are packed in oil and sold as "sardines." In the fish canning industry Maine stands next the state of Washington. Along the rivers are immense **ice-houses**, which are filled in winter. In summer the ice is sent on barges to the great cities farther south. The quarrying of lime, slate, and granite are also important industries.

Cutting and shipping ice on the Kennebec river.

Chief Cities. — The southwestern part of the state contains over half the population and has many busy **manufacturing towns** and **cities**. Many of these, among which are Biddeford, Saco, Lewiston, Auburn, Waterville, and Augusta, are built at the falls of streams. All of these manufacture cotton goods. Boots and shoes are the chief product of Auburn. Augusta, the capital and second city, situated at the head of navigation on the Kennebec, is noted for its paper-mills. The largest city and chief seaport of the state is **Portland**. The city is located on an excellent harbor and is the busiest **railroad center** of the state. The Grand Trunk system of Canada has its southern terminus here, and many Canadian products are shipped abroad from this port, especially in winter. Hence it has extensive grain elevators and docks. Machinery and engines are made in Portland.

Portland harbor is one of the most beautiful of the hundred or more good har-

bors to be found along the coast. The city is built on a lofty peninsula, and many beautiful summer homes crown the heights along the shore and on the islands of Casco bay. It was the birthplace of two famous American poets, Henry W. Longfellow and Nathaniel P. Willis. The old Longfellow house, now a library, still stands, overlooking the harbor. **Augusta** and **Bangor** are the cities next in size; for what are they noted? **Bath, Belfast, Camden,** and **Eastport** are ship-building towns. The lime quarries near **Rockland** supply all of New England.

QUESTIONS AND TOPICS. — (1) Describe the location and surface of Maine. What industries and amusements depend upon the surface features? How do you account for the irregular coast? (2) What is said of the forests? What is done with the timber? How is wood-pulp made? Uses? (3) Compare the northeastern and southwestern parts of the state as to surface, population, and industries. What are the chief farm products? Name some of the manufactures of the state. (4) Describe the city of Portland. What is said of its harbor? Its noted men? Make a list of the leading cities and their industries.

NEW HAMPSHIRE

Answer the questions under MAP, *page* 115.

Natural Features. — New Hampshire, the "**Old Granite State,**" has the highest mountains in New England. It is widely known for its fine **scenery**, on account of which it is sometimes called the "Switzerland of America." Thousands of people visit this state every summer for rest and recreation among its lakes and mountains.

The Presidential range of the White mountains contains the highest peaks, three of which are named after the first three of our presidents. An inclined railroad runs all the way to the top of mount Washington, the highest peak. Another section is called the Franconian range. These mountain ranges are cut from north to south by valleys, or "notches," which are noted for their beautiful scenery and through which the railroads gain access to the higher elevations among the mountains.

Industries and Cities. — The streams that flow down from the New Hampshire hills and mountains add great value to its natural resources. The **Merrimac** river turns the spindles of more cotton mills than any other river in the world. **Concord, Manchester,** and **Nashua** are built along its banks, besides the cities of Lowell and Lawrence in Massachusetts. Concord, the capital of the state, is noted for the making of fine wagons and carriages, and for its granite quarries. Nashua is built at a fall in the Nashua river, where it joins the Merrimac, and is noted for cotton goods. **Berlin,** in the

forest regions in the northern part of the state, has one of the largest paper-mills in New England. In the central part of the state are many beautiful lakes, the largest of which is lake Winnepesaukee. The most abundant water power is found in the southern half of the state, and here are prosperous manufacturing towns.

A waterfall in the White mountains and railroad ascending Mount Washington.

Portsmouth is the chief seaport and port of entry of New Hampshire. Its commerce, however, is insignificant. On the opposite side of the Piscataqua river from Portsmouth, at Kittery, Maine, is a navy yard of the United States, known as the Portsmouth navy yard. Portsmouth became famous in 1900 as the meeting-place of the Russian and Japanese commissioners who came there to

conclude a treaty of peace between their respective countries. Among the famous educational institutions of the state are Phillips Academy at **Exeter** and Dartmouth College at **Hanover**. The great American statesman and orator, Daniel Webster, was born at Salisbury, N. H., and was educated at Dartmouth.

QUESTIONS AND TOPICS. — (1) What classes of people profit by the large summer travel in this state? (2) Why is farming of little importance? (3) Why are the large cities of New Hampshire in the southern part? (4) By what route might New Hampshire obtain cotton for its mills? (5) How much coast line has this state? Name and locate its only seaport. For what noted?

VERMONT

Answer the questions under MAP, *page* 115.

Resources and Industries. — Vermont, the "**Green Mountain State**," is best known on account of its **quarries** of marble, slate, and granite. It also produces more maple sugar than any other state.

A birds'-eye view of St. Albans, Vermont, looking towards lake Champlain.

The sugar trees are tapped after the first thaw in the spring by boring through the bark into the sap wood to a depth of about three inches. A spout is driven in to catch the sap and lead it into a pan or pail. The sap is carried to the sugar house, where it is evaporated in huge shallow pans or boiled in kettles until syrup is obtained. If sugar is to be made, the syrup is boiled longer and then run into pans or pails, where it cools and hardens.

The city of **Barre** has given its name to the **granite** that is quarried there. Workmen drill rows of holes into the hard rock to control the line of fracture. A blast of powder or dynamite is put into these holes and exploded, breaking the rock into great blocks. These are afterward cut, ground, and polished, and shipped away for use as monuments and building stone. Hardwick is also noted for its granite. **Marble** is softer than granite. It is mined in the quarries in the form of great blocks. Saws are used to cut up these blocks into any form desired. More marble is quarried in Vermont than in any other state. The best known quarries are near the cities of

A steel crane used for loading blocks of marble upon cars in the quarries of West Rutland, Vermont.

Rutland and **Proctor**. They supply about half the marble produced in the United States.

In the western part of the state, along the border of New York, are quarries of **slate**. Slate is a rock that splits easily into thin sheets. It is blasted out in irregular blocks and split apart with hammer and chisel. The sheets are trimmed to the required sizes with a knife worked by machinery.

The slate is red, black, or blue, the first two colors being the most valuable. We often see slate roofs on houses laid in designs of these colors. What are other uses of slate?

The **soil** of Vermont is a coarse gravel mixed with boulders left

by the glaciers. In the river valleys the soil is better than on the uplands. Butter and cheese are the chief **farm products**. Apples grow well, and cattle, horses, and hay are sent to other states to be sold.

Vermont was the first state admitted into the Union after the original thirteen. Its territory was claimed by both New York and New Hampshire, but after nearly fifty years of discussion, both states withdrew their claims. Vermont was also the first state to abolish slavery.

1. The university of Vermont, at Burlington. 2. The harbor at Burlington.

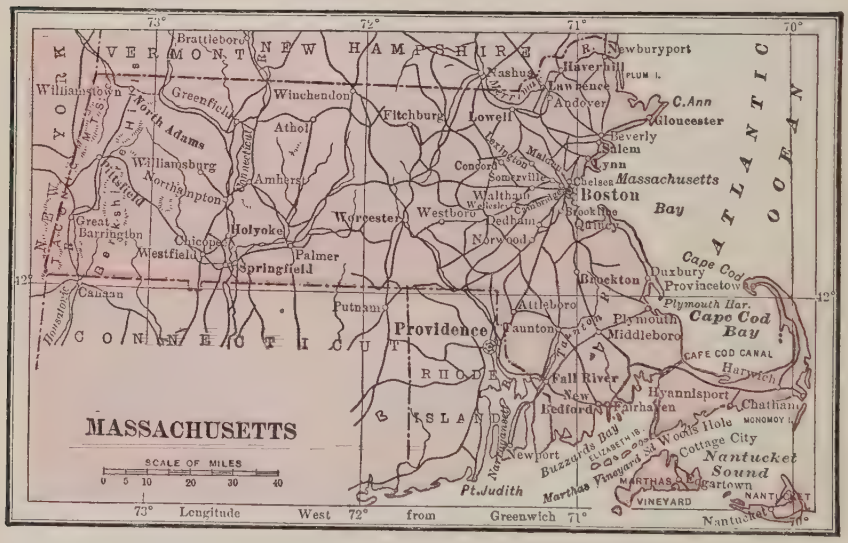
Cities. — The largest city, **Burlington**, is finely located on one of the best harbors on lake Champlain. It has a large trade in lumber. **Rutland**, **Manchester**, and **Dorset** are quarrying centers. **St. Johnsbury** has the largest scale factory in the world. **Montpelier**, the capital, is a small city.

QUESTIONS AND TOPICS. — (1) What do you know of the name and history of this state? What are the products of the mountainous part of the state? (2) For what farm products is it noted? What is said of the soil of the state? Make a list of the chief cities of the state and their industries.

MASSACHUSETTS

Answer the questions under the MAP, *page* 115.

Surface. — This state lies partly in the Appalachian highland region and partly in the low plateau and coast plain of New England. The southeastern part is low and sandy and abounds in marshes and scrubby forests. The central part is crossed by a **height of land** which divides the state into two drainage slopes. The western slope



is traversed by the Berkshire hills and other low ranges of the Appalachians. One of these, the Hoosac range, is pierced by a tunnel $4\frac{3}{4}$ miles long. This is the longest railroad tunnel in the United States. The highest peak of this section is mount Greylock (3,535 feet). The entire western section is exceedingly picturesque and abounds in summer resorts. The deep indentations of the coasts have given rise to the name "Bay State." Excellent harbors are formed by Massachusetts bay, Cape Cod bay, and Buzzards bay.

The rivers of the state are remarkable for their water power. The Connecticut, the Merrimac, and the Blackstone are most important and are lined with

factories. In the central and western parts of the states are the Chicopee, the Housatonic, and their tributaries.

Climate and Soil. — Massachusetts has severe **winters**, accompanied by heavy snows and cold northerly winds. The **summers** are usually cool and delightful. There is an abundance of rain, and the hills and valleys afford excellent pasturage for cattle. The Connecticut valley forms a broad strip of fertile farming land, but in other parts of the state the soil is thin and much of it is unproductive (see *page* 113).

View in the Fore River Ship Yards, at Quincy, Massachusetts.

The surface rocks of Massachusetts are for the most part hard granite, gneiss, and volcanic rock which has broken through the underlying layers. The river valleys contain deposits of sandstone and shale. The effects of the glacial period are seen in numerous hills composed of drift, and in the barren and eroded rocks from which the soil has been removed.

Natural Resources. — The heavy forests which once covered the state have been cut, and there is little timber left suitable for lumber. Aside from the granite hills which afford valuable quarries the mineral resources are confined to clays, molding sand, and a small amount of iron ore. The fertile river valleys are carefully cultivated and supply the numerous large cities with fruits and vegetables, dairy products, poultry, and eggs. This kind of farming is

very profitable and the rural districts of the state abound in comfortable homes and well-kept and prosperous farms. The fisheries rank next in value to the farm products. The most valuable of these are at a distance from the shore, extending all the way to the Newfoundland banks. About fifteen thousand persons are employed. The chief varieties taken are cod, haddock, halibut, mackerel, herring, and lobsters. Shell-fish are abundant. In early times the fisheries, including whaling, were the most important industries of the state.

History. — The Plymouth colony, established in 1620, was the first settlement within the bounds of the state. Other colonies were planted a few years later at Salem, Boston, and the neighboring towns. In 1643 all of these colonies united with Connecticut and New Haven to resist the Dutch and the Indians. The first college was founded in 1636. The first newspaper was published in 1704. Some notable events in connection with the history of Massachusetts were the Salem witchcraft delusion in 1692, the Boston Massacre, the Boston Tea Party, and the battles of Concord, Lexington, and Bunker hill.

Two steps in the manufacture of shoes: cutting and stitching the uppers.

Manufacturing. —Massachusetts stands fourth among the states in the value of her manufactures. In cotton and woolen goods, boots and shoes, and rubber goods she ranks first. Next in importance are leather, jewelry, cordage, paper, knit goods, and carpets.

Up to 1830 Massachusetts stood foremost in all manufacturing industries. The state is lacking in raw materials of every sort. She has no coal, few metals, and produces practically none of the fibers from which her textile fabrics are made. Her factories were originally established on account of the available water power and because her people were the first to accumulate wealth to engage in new enterprises.

In the northeastern part of the state, on the banks of the Merrimac, are **Lowell** and **Lawrence**, the leading cities in textiles. Lawrence leads in woolen goods and Lowell in cottons. In the southern part are **Fall River**, **New Bedford**, and **Taunton**. The first two produce cottons and the latter locomotives, machinery, and metal ware. The leather interests center about Boston, near which are extensive tanning industries, supplied by hides brought from South America and our Western states. The leather is made into boots and shoes and other products at **Brockton**, **Lynn**, **Haverhill**, and other towns, which together produce nearly half of all the leather goods made in the United States. **Worcester** produces wire and machinery, woolens, and boots and shoes. In the western part paper is the leading product, **Holyoke** being the first city of the United States in the production of this article. **Attleboro** and **North Attleboro** lead in jewelry and **Cambridge** in printing and publishing. The chief fishing ports are **Boston**, **Gloucester**, and **Provincetown**.

Cities. — Boston is the leading commercial seaport of Massa-

chusetts and transacts nearly all the **foreign** and a large part of the **domestic** trade. Its **exports** are chiefly grain and flour, meat products, and the characteristic manufactures of the state. The imports are mainly raw sugar, wool, hides, cotton, and fibers. Its chief manufactures are sugar, clothing, and metal wares. It is also one of the chief publishing centers of the country. Among its more noted educational institutions are the Institute of Technology, Boston University, and the Conservatory of Music.

The Old North Church, Boston. It was from the steeple of this church that lanterns were hung April 18, 1775, as a warning to Paul Revere to rouse the minutemen to attack the British on their way to Concord.

Boston played a leading part in our early history and was the seat of important events at the beginning of the Revolution. Near by are **Lexington** and **Concord**, where the first battles were fought, and **Charlestown**, with its monument in memory of the battle of Bunker hill. **Cambridge** is the seat of Harvard University, the oldest in the United States.

Wellesley, **Northampton**, and **South Hadley** are seats of important colleges for women. **Waltham** is noted for its watch factory, which is perhaps the largest in the world, employing over 6,000 people.

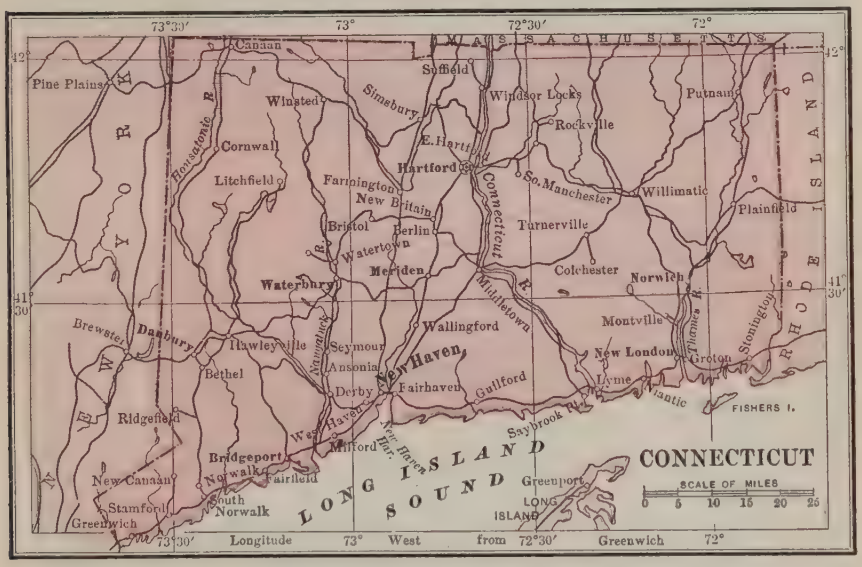
Springfield, a flourishing city in the Connecticut valley, contains an arsenal, where army rifles are made. Other products are paper, packed meats, and railway cars. **Clinton, Pittsfield,** and **Dedham** are flourishing towns engaged in making woolens. **Adams**, **North Adams**, **Pittsfield**, **Chicopee**, and **Newburyport** are cotton manufacturing towns. **Brookline**, **Somerville**, **Newton**, **Malden**, **Melrose**, **Medford**, **Revere**, **Hyde Park**, and **Winchester** are beautiful residential towns in the suburbs of Boston.

QUESTIONS AND TOPICS. — (1) Location of this state. Natural divisions. Chief mountain ranges. Harbors. Name and locate the chief rivers. (2) What is said of the seasons? Temperature and rainfall. Soil. What rocks are found in Massachusetts? Effect of the glaciers. (3) Name the chief natural resources. What is said of the fisheries? Name some important events in the history of Massachusetts. (4) What advantages has this state for manufacturing? What disadvantages? What are the three leading industrial sections? Name the chief products of each section. (5) Describe the manufactures and trade of Boston. Make a list of the important cities of the state and write an important fact about each.

CONNECTICUT

Answer the questions under the MAP, *page* 115.

Resources and Industries. — Connecticut has no mines or forests and little fertile soil. The soil of the Connecticut river valley is suited to **tobacco**, and fine crops are raised. In other parts of the state, farming is not a leading industry. On the west bank of the Connecticut river are valuable **quarries** of red sandstone, much used



for the fronts of houses and for ornamental work in building. The **streams**, as in other parts of New England, furnish good water power. There are **falls** and **rapids** within a few miles of the sea, for the coast plain is very narrow.

The wealth of Connecticut comes from her busy factories and mills, which line the banks of every stream and furnish employment for the people of the prosperous inland villages. The state is famous for the ingenuity of its people, who manufacture silver-plated ware, clocks, watches, knives, scissors, pins, needles, and "Yankee notions" of every sort.

The simplest and most common of all these articles is the pin. Pins were once

a luxury, but to-day we use 75,000,000,000 annually and throw them away. When pins were made by hand, the process required the labor of eighteen persons, each performing a separate step in the operation; but the "Yankee" pin machine now does the work of these eighteen pairs of hands. Four fifths of the pins made in

Factories of the Winchester Arms Company at New Haven.

the United States come from Connecticut. The raw material used is a brass wire, which is wound around a drum attached to the machine. The wire is first straightened by being drawn between rigid iron pegs set in a row; it is then gripped by a pair of jaws and held an instant while a die hammers a head on

A part of the Yale University Campus.

the projecting end and cuts off a pin length. The pins then drop into a traveling slot which holds them head up and carries them between two revolving cylindrical files which smooth and point them. After being polished in a revolving drum and receiving a bath which coats them with tin, the pins, now complete,

pass into a hopper which feeds them down an inclined plane having as many longitudinal slits as there are to be pins in a single row on the paper. In passing down this plane the pins are brought into alignment, and at its end a row of them is struck by a "rammer" from above and forced through the paper which is creased and held in front of the inclined plane. Another part of the mechanism cuts off the proper number of rows of pins and rolls them up to make a "paper of pins."

Equally interesting and complicated are the processes by which hairpins, needles, steel pens, lead pencils, and dozens of other small articles are made.

The Soldiers Memorial Arch and the State Capitol at Hartford.

Cities. — New Haven, the largest city in the state, has many factories and stores and is famous as the seat of **Yale University**, one of the three oldest colleges in the country. The college buildings stand on a broad field or campus, shaded by many large and beautiful elm trees. New Haven is sometimes called the **City of Elms**, because so many of the streets are lined with them. **Waterbury** is noted for clocks and watches, and **Meriden** for silverware and cutlery.

Hartford, the capital, is at the head of steamboat navigation on the Connecticut river. It has many insurance companies which do business in every part of the United States. Fire-arms, bicycles, and automobiles are made there. **Bridgeport** is the third city and makes sewing-machines, ammunition, and various other articles.

The southeastern part of the state has many cotton manufacturing towns; **Norwich** and **Willimantic** are two of the largest. **Danbury** makes more hats from wool and fur than any other city in the world.

Hats are made of wool and the fur of rabbits, beavers, and other animals. The fur is first put through a machine called a picker, which cleans it. Then it is sprayed with hot water to make the fibers stick together, and is blown through a tube against a revolving cone. This forms the "body" of the hat. The body is taken from the cone and shaped by pulling and beating it with the hands. It is next stiffened with shellac and "blocked" to give it any desired shape. After ironing, dyeing, trimming, and finishing, the hats are packed in boxes and are ready for the market.

QUESTIONS AND TOPICS. — (1) What is said of the natural wealth of Connecticut? What is the chief source of her wealth? (2) Name some of the characteristic manufactures. Give an account of the manufacture of pins. Tell something about the making of hats. Locate the city most noted for hat making. (3) Locate, and give the characteristic manufactures of some of the leading cities.

RHODE ISLAND

Answer the questions under the MAP, *page* 115.

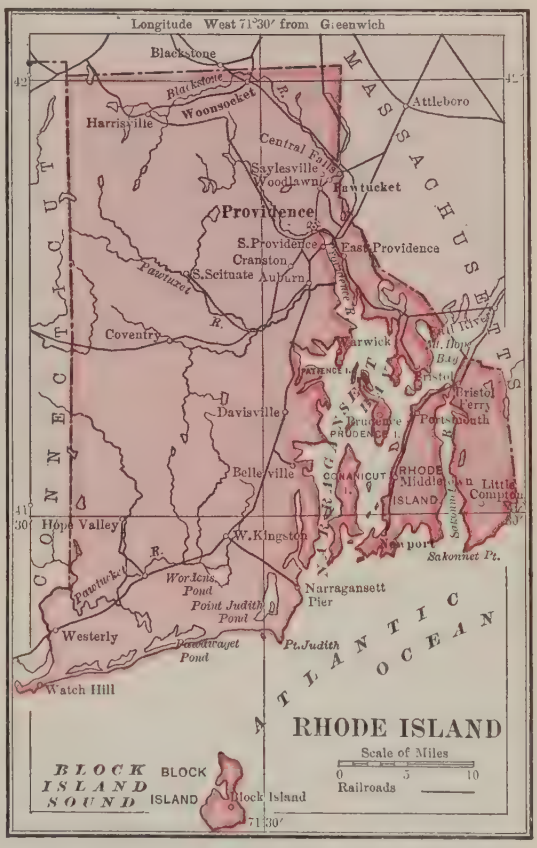
Size and People. — Rhode Island is the smallest and most densely populated of all the states; if our entire country were as thickly settled as this state, it would contain three fourths as many people as there are in the world to-day.

Divide the population of the state by its area and ascertain the number of people per square mile; multiply the area of the United States by this number. Compare this number with the combined populations of Europe and Asia.

History. — The **first settlement** in Rhode Island was made at **Providence** in 1636 by **Roger Williams**, who was driven out of Massachusetts on account of his religious opinions. About the same time **Ann Hutchinson**, another "dissenter," with some of her followers settled at **Newport**. These two settlements were united in 1643 by a charter obtained from the English Parliament which for the first time in the history of the world gave freedom of worship to people of every religion.

Surface, Soil, and Climate. — The surface of the state is low

and covered with a coarse and stony **soil** ill-suited to cultivation. There are numerous glacial **lakes** and a number of low, rounded **hills** of hard rocky remnants of the ancient plateau. The **climate** is moist, with a temperature fairly moderate throughout the year, though the interior has the usual cold New England winter.



The state is nearly cut in two by **Narragansett bay**, which affords one of the best harbors on the coast. The bay contains numerous islands, the chief of which is **Rhode Island**, the site of the city of **Newport** and a popular summer resort. The largest river of the state is the **Blackstone**, which cuts through the northeastern part and is one of the chief industrial rivers of New England; it is dammed so frequently that its banks are lined with an almost continuous village of factories.

Industries and Cities. — Rhode Island has no forests or mines and few minerals except granite. Her **factories** are the chief source of wealth. In the value of her manufactured products she is, according to population, the leading state in the Union. The cotton and woolen industries of Rhode Island were the first established in this country, and are still the leading industries of the state.

Providence, the largest city, manufactures more worsted goods than any other city in the United States; it leads also in jewelry and silverware; tools, hardware, machinery, and dyes are also among its products.

Brown University and the State Normal School are located at Providence. The city is a terminus for the "Sound steamers" from New York and for several important railways.

Views in the factory of the Gorham Silver Company at Providence. Shaping and ornamenting silver vases.

Pawtucket, the second city, is noted for cotton goods, and Woonsocket, the third city, leads in the manufacture of rubber goods. Newport has a world-wide reputation as a fashionable summer resort; it contains hundreds of substantial homes and stately palaces owned by wealthy men throughout the country. The "Cliff

A rubber mill at Woonsocket, Rhode Island.

Walk" affords a fine view of the ocean. On account of its fine harbor Newport is a favorite meeting-place for yachts and pleasure craft. Other leading towns are **Warwick**, **Cranston**, and **Central Falls**, all noted for textile goods.

QUESTIONS AND TOPICS. — (1) Size and population. Early settlements and people. (2) What is said of the surface and soil of this state? How do you account for the hills and lakes? What important river and bay are mentioned? (3) What sources of wealth has Rhode Island? Make a list of the leading cities of the state and tell an important fact about each.

NEW YORK

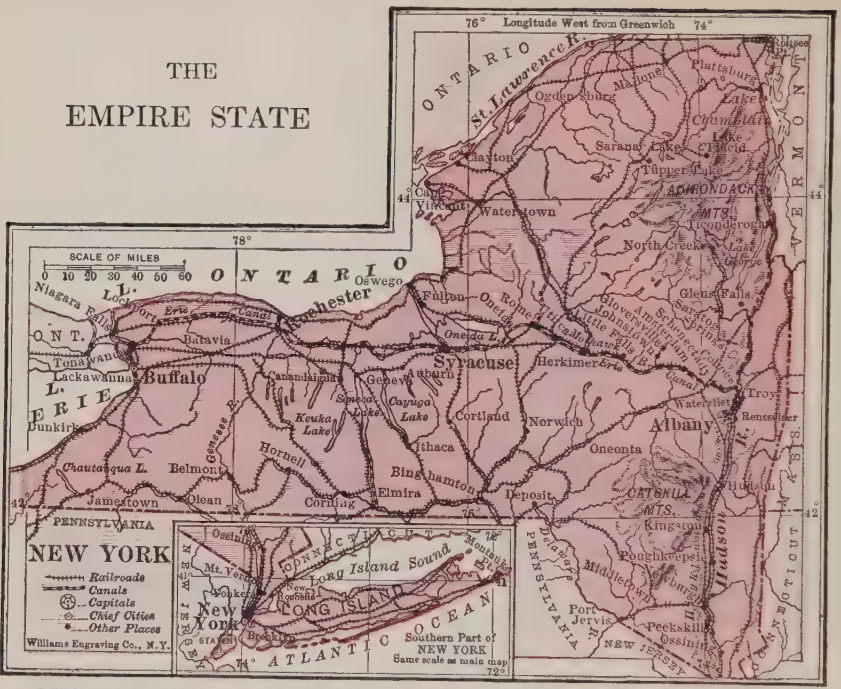
Answer the questions under MAP, *page* 115.

Rank in Population and Wealth. — New York is called the **Empire State** because it is the richest and most populous state in the Union. Though it has less than one sixtieth of the area of the United States, it has one tenth the **population**. It leads also in manufacturing and commerce. The value of the state's **manufactures** is over one fifth the value of all the goods made in the entire country.

History. — If we go back to the early times, we find that the **Dutch colonies** on Manhattan island and along the valley of the Hudson were established more for the sake of trade than on account of the fertility of the soil. The **Indians** brought their beaver skins down the Mohawk and Hudson valleys to Albany. They came through the East river from the shores of Long island and Connecticut, and across the Hudson from New Jersey. New Amsterdam was a convenient receiving and shipping point. After the Revolution the land between the Appalachian highlands and the Mississippi river became a part of the United States. **Settlers** from the older states hastened to take possession of that rich country. Their easiest route lay along the Hudson and Mohawk rivers to lake Ontario. Then they went by way

Washington's headquarters at Newburg.

THE EMPIRE STATE



MAP STUDIES. — (1) Between what parallels of latitude does New York State lie? (2) Between what meridians of longitude? (3) (*a*) What states touch it on the east? (*b*) On the south? (*c*) On the west? (4) What waters border this state? (5) What is its area? (6) Describe the surface. (7) Name three mountain ranges in New York State. (8) Of what system or plateau do these ranges form a part? (9) Name and locate three great river valleys. (10) For what are these valleys noted? (11) Name and trace two great waterways. (12) Which one of these helped to make the City of New York the greatest commercial city of the Western Continent? (13) Explain how. (14) When and by whom was the Erie canal built? (15) What was its purpose? (16) Describe the climate. (17) Where is the greatest rainfall in the state? (18) Give the reason for this. (19) Name six of the chief products. (20) What are the five chief industries? (21) What can you say of the fruit raising? (22) Name some of the most important manufacturers? (23) What are the mineral products? (24) Name three great trunk lines of railroad that connect the City of New York with the growing West. (25) Name the ten largest cities of New York State. (26) In each case tell something for which the city is noted. (27) What is the population of this state? (28) Name and locate the capital. (29) Locate the City of New York. (30) In what county is it situated? (31) For what is it noted? (32) When and by whom was this city settled? (33) What is its population? (34) When was New York the capital of the nation? (35) What president was inaugurated here? (36) Where in the city did this take place? (37) Name some great citizens and tell for what each is renowned? (38) Name two cities that border the city of New York. (39) In what county are these cities located? (40) Name other cities easily reached by subways.

LONG ISLAND
SCALE OF MILES
0 5 10 15 20
NEW JERSEY
NEW YORK
CONNECTICUT
LONG ISLAND SOUND
ATLANTIC OCEAN
New Haven
Madison
Saybrook
New London
Stonington
Fishers Id. Sd.
FISHERS I.
The Race
Bridgeport
South Norwalk
Stamford
Port Chester
Hempstead Harbor
Lloyds Pt.
Eatons Pt.
Old Field Pt.
PLUM I.
Orient
Orient Pt.
Greenport
Southold
Peconic
Cutchogue
Mattituck
SHELTER ISLAND
GARDINERS ISLAND
Gardiners Bay
Montauk Pt.
Montauk
Sag Harbor
Napeague Beach
Amagansett
Easthampton
Bridgehampton
Sagaponack
Southampton
Meeting House Creek
Peconic Bay
Shinnecock Hills
Shinnecock Bay
Riverhead
Jamesport
Great Peconic Bay
Water Mill
Calverton
Manorville
Eastport
Speonk
Quogue
Good Ground
Port Jefferson
Wading River
Rocky Point
Shoreham
Miller's Place
Setauket
Stony Brook
St. James
Kings Park
Smithtown
Lake Grove
Selden
Coram
Commack
Deer Park
Ronkonkoma
L. Ronkonkoma
Central Islip
Medford
Brookhaven
Patchogue
Moriches
Center Moriches
Eastport
Westhampton
Westhampton Beach
Quogue
Speonk
Riverhead
Roslyn
Glen Cove
Oyster Bay
Cold Spring Harbor
Huntington Sta.
Northport
Port Washington
Manhasset
Great Neck
Flushing
Jamaica
Queens
Hempstead
Farmingdale
Freeport
Rockville Centre
Babylon
Fire Island
GREAT SOUTH BEACH
FIRE ISLAND BEACH
ROCKAWAY BEACH
LONG BEACH
JONES BEACH
CONEY I.
STATEN ISLAND
BROOKLYN
QUEENS
RICHMOND CITY
New York Bay
Upper Bay
Bayonne
Hudson River
Harlem River
Passaic River
Rahway River
Raritan Bay
Arthur Kill
Kill Van Kull
Newark Bay
Hackensack

of the lakes or overland to the headwaters of the Ohio river. Thousands of families traversed this route between 1790 and 1820. Many of them, attracted by the rich farming land in central New York, settled along the way. Many of the settlements then established have since grown into great cities. In order to reach the seaboard and to take back supplies to the settlers, the **Erie canal** was built. After the invention of the locomotive, **railroads** were needed to accommodate the increasing trade and travel. Two great trunk lines, following the Hudson river valley and the Erie canal, now lead out from New York to the West.

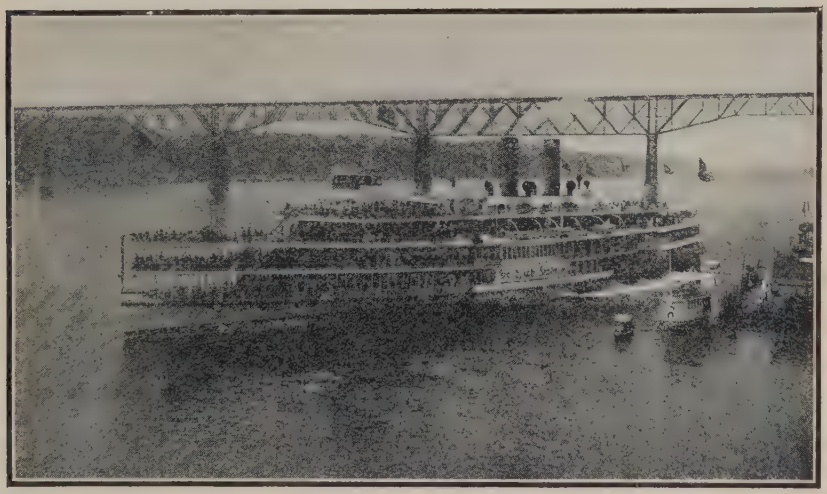
Surface. — The surface of the state is made up of **four regions** of mountains and plateaus and **three great valleys**. The **Adirondack** mountain region contains the highest land in the state. Mount Marcy attains an elevation of over 5,000 feet, and many peaks are but little lower. This region is famous for lumbering and paper-making and for its beautiful lakes and streams, which attract thou-

Summer homes on Long Island sound.

sands of people during the summer. Fishing and deer-hunting are the favorite sports. South of the Adirondacks is the **Catskill** group, famed for its summer resorts. Some of the peaks exceed 4,000 feet — nearly twice the elevation of the Highlands. From their summits one may obtain a magnificent view of the river and valley of the Hudson. The entire region is dotted with hotels and boarding-houses to accommodate summer visitors. In the southeastern part several ranges of the Appalachians cross the Hudson valley and unite with the Berkshire and other ranges of New England. The upright walls of volcanic rock where the Hudson has cut its way through the mountains are known as Palisades and are part of the **Highlands** of the Hudson. Scattered peaks on both sides of the river are noted for beautiful scenery and historical associations. The southern and western parts of the state belong to the **Allegheny**

plateau, a region which lies west of the Allegheny mountains and extends through West Virginia and Pennsylvania into New York. Its average height is about 2,000 feet. Along the southern border there are rich deposits of petroleum and natural gas.

The Hudson river and lake Champlain occupy a continuous **valley** which extends from the southern to the northern part of the state, a distance of over 300 miles. There is a **second** valley along lake Ontario and the St. Lawrence river. It is really a gradual slope from the plateau region to the lake and river and is made up



View of the railroad bridge over the Hudson river at Poughkeepsie.

of two terraces, or belts of elevation. The **third** valley, which connects the other two, is that of the Mohawk river.

The **Hudson** and **Champlain** valley forms a natural highway from New York City to Canada. During the French and Indian war and the Revolution many attempts were made by the French and British to get control of it, and it has been the scene of many bloody battles. The forts at Ticonderoga, Crown Point, and West Point were built to prevent the enemy from entering the valley and so cutting off New England from the rest of the country. During the war of 1812 both sides strove to control the navigation of the lakes bordering New York state. The British fleet on lake Erie was defeated by Commodore Perry, and Commodore McDonough won a signal victory over the British fleet on lake Champlain.

Rivers. — The **Hudson** is the largest river in the state. So low and so level is the Hudson valley along the 150 miles from Troy to New York that the river rises and falls with the ocean tide and is navigable the whole of that distance. At Glens Falls the Hudson descends abruptly over ledges of slate rock a distance of about seventy feet, affording immense water power. This water power and the neighboring forests of spruce account for the many wood-pulp and paper mills which have been built up at this point. The chief tributary of the Hudson is the **Mohawk**. In its course from Rome to its outlet the Mohawk has a total fall of 450 feet. Its final leap at Cohoes just before it joins the Hudson is 70 feet. Cohoes has almost a hundred factories of all kinds. Eighteen of them make hosiery and knit goods. The St. Lawrence and Niagara rivers on the northern and western borders are an important part of the state's system of interior navigation. These rivers have rapids and falls which are avoided by means of canals.

The enormous power of **Niagara falls** is now being utilized. Water from above the falls is led through great iron tunnels, in which are turbine water-wheels; these are turned by the weight of water passing through them. The shafts of these wheels are connected with dynamos which generate **electricity**. The current is carried by copper wires to Buffalo and to the neighboring cities, where it is used for lighting and to move cars and to turn the wheels of mills and factories. The expansion of the St. Lawrence river where it leaves lake Ontario is called **Alexandria bay**, or the bay of the "Thousand Islands." The islands, dotted with hotels and summer homes, clothed with trees and flowers, and surrounded by deep channels of clear water, are very beautiful.

The **northern slope** of the state is drained into the St. Lawrence river and lake Ontario. The largest river of this slope is the **Genesee**. A series of falls in this river has helped to build up the city of Rochester with its two thousand or more mills and factories. The **Oswego** and the **Black** are the most important rivers of the lake plain. A canal has been built along the Oswego connecting lake Ontario with the Erie canal.

Lakes. — New York is noted for its many beautiful lakes. Some of these are of great importance to navigation. The bordering lakes of **Erie**, **Ontario**, and **Champlain** form with the St. Lawrence and Hudson rivers and the Champlain canal a continuous water way surrounding three sides of the state. The **lumber** of Canada is brought

into the state by this route. Buffalo, North Tonawanda, Watertown, Plattsburg, Albany, and other towns along these waters are large lumber markets.

The Genesee river at Rochester at time of high water.

In the central part are several long, narrow lakes called from their shape the *finger* lakes. Near these lakes there are deep gorges worn by the streams, and many rapids and waterfalls.

A field of timothy hay in New York.

Industries and Products. — The great valleys of New York state are the richest farming regions east of the Mississippi valley. Hay, oats, hops, potatoes, and corn are the leading **crops**. More **milch cows** are kept and more milk, butter, and cheese are produced

in New York than in any other state. **Fruits** are next in value. California alone surpasses New York in the amount produced. Many of the **apples** find their way to the markets of European countries. In the Mohawk valley near Rome and Utica and at many smaller places there are **canneries** for sweet corn, peas, beans, berries, and other fruits and vegetables. Farmers find profitable employment in supplying these canneries.

Millions of pounds of fruits are **dried** for market. **Cider** and **vinegar** are made from apples and other fruits and are valuable products. In connection with the fruit and vegetable industries **nurseries** should be mentioned. These are farms devoted to raising seeds and young trees and shrubs. It is important for the gardener and fruit-grower to be able to obtain the best varieties for cultivation. The largest nurseries are near Rochester and on Long Island.

Minerals. — The only **metal** mined in the state is iron. It occurs chiefly in the eastern and northern sections. The **quarries** of the Hudson valley afford bluestone, granite, and limestone. **Slate** and **marble** are found in the Adirondack and Champlain regions. The graphite mines of this section supply the entire country with this useful mineral. **Petroleum** and **natural gas** are obtained in the southern part and **salt** in the central part of the state.

Rock salt is generally **mined**, by means of shafts sunk deep into the earth. Another method of obtaining salt is to let water down into the salt beds, where it **dissolves** the salt, forming a brine. This brine is pumped up and then evaporated, leaving the salt as a residue. If soda is to be made, ammonia and carbonic acid gas are mixed with the brine. In the production of salt and soda New York is the leading **state**.

Manufactures. — New York is the leading manufacturing state. Over 1,000,000 men, women, and children find employment in the factories. **Clothing** for men, women, and children is the most valuable product. **Textile goods**, such as carpets, woolens, cottons, and hosiery, are next in importance. New York also leads in the making of **wood-pulp** and **paper**, and in the printing and publishing of **books** and **papers**.

Cities. — Next to London **New York** is the largest city in the world. It comprises five parts called **boroughs**, joined by bridges, ferries, and tunnels, making one united city called Greater New York. Jersey City, Hoboken, Paterson, Newark in New Jersey, and Yon-

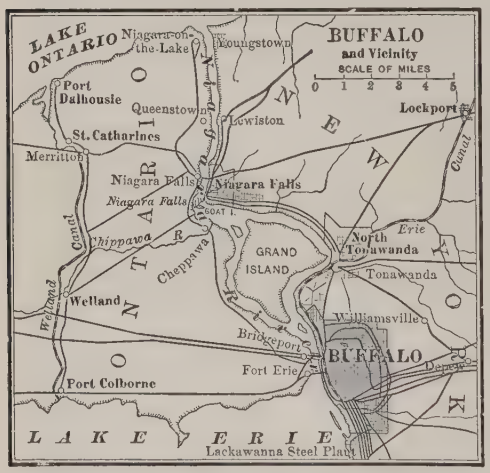
kers, Mt. Vernon, and other towns with New York form one great metropolitan district.

Municipal office building and terminal at City Hall park.

New York has many banks and insurance and trust companies which control hundreds of millions of dollars. Much of this money is used to carry on business enterprises in all parts of the United States. The city had in 1910 nearly 26,000 manufacturing establishments with 700,000 employees earning annually $250,000,000 and producing goods valued at $2,000,000,000.

Among the larger **products** of the city's factories are clothing, iron and steel goods, books and papers, malt liquors, millinery and lace goods, men's furnishing goods, bread and bakery products, boots and shoes, and confectionery. These are only a few of the 250 or more kinds of goods made. Many of the working people live in tall and crowded **tenements** in the more thickly settled parts of the city. Perhaps a million people who work in the borough of Manhattan live in other boroughs and suburban towns and travel back and forth to business every day.

Other Cities. — The largest cities of the state have grown up along the Hudson river and the Erie canal. **Buffalo**, the second city in size, has one of the finest harbors on the Great Lakes. It has an immense trade in grain, live stock, coal, and lumber. **Rochester**, at the falls of the Genesee river, is noted for the making of cameras and lenses, men's clothing, boots and shoes, flour, and furniture. **Syracuse** was founded on account of the salt deposits near by. It is noted also for its machine shops and for its university. **Albany**, the state capital, has the largest car yards and repair shops in the state. It is the terminus of the Erie canal and is connected by rail with all parts of New England, Canada, and the West. **Troy** is the terminus of the Champlain canal.



New York has forty-nine other cities with a population of 10,000 or over. Many of these have one or more great industries. **Cohoes, Amsterdam,** and **Little Falls** are noted for hosiery and knit goods; **Yonkers** for carpets; **Schenectady** for electrical apparatus and locomotives. **Olean** is in the petroleum region and has oil refineries; **Hornell** has silk mills; **Lockport**, paper-mills; **North Tonawanda** and **Jamestown** are noted for lumber and furniture; and **Ithaca** and **Poughkeepsie** for farming implements.

Transportation and Commerce. — A large part of the commerce of the state is carried on through the great seaport of New York. That city is the chief center and distributing point for home and

foreign trade. It is also the greatest railroad center east of Chicago. The **New York Central**, a four-track line, follows the Hudson and

A room in the works of the Eastman Kodak Company at Rochester, where the materials for making transparent films are prepared.

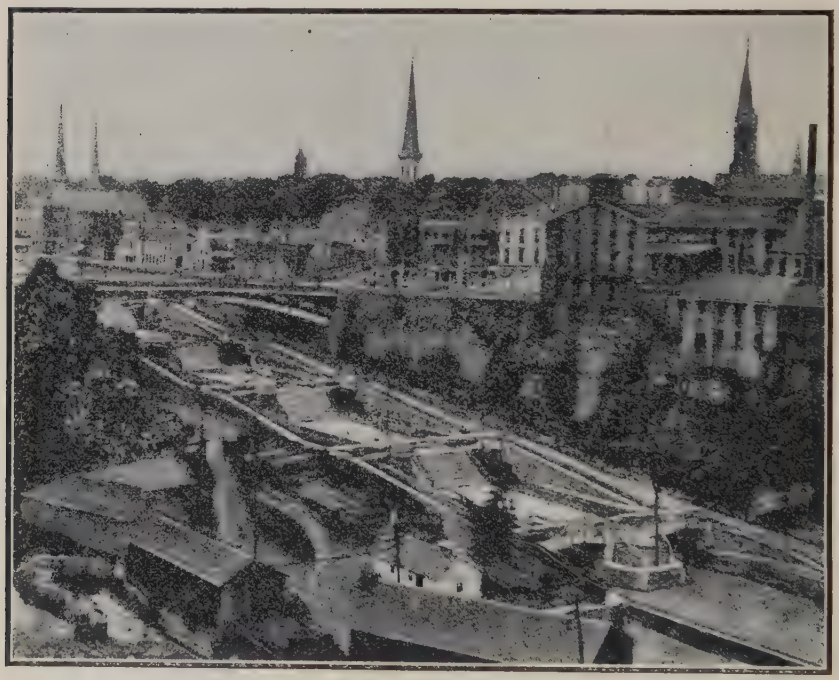
Mohawk valleys and the Lake plain to Buffalo. A second route runs through the Champlain valley from Canada. Troy and Whitehall are connected by a canal, forming an all-water route, and

View in Syracuse showing Erie canal.

the **Delaware & Hudson** railroad follows the western bank of lake Champlain. Much of the lumber, gold, and copper of Canada are

brought by this route, and clothing, cloth, iron and steel, coal, and machinery are carried back. Along the southern border of the state is the **Erie** railroad, and numerous lines cross the plateau connecting the Erie and the New York Central lines.

Exports and Imports. — Foreign goods are brought into the



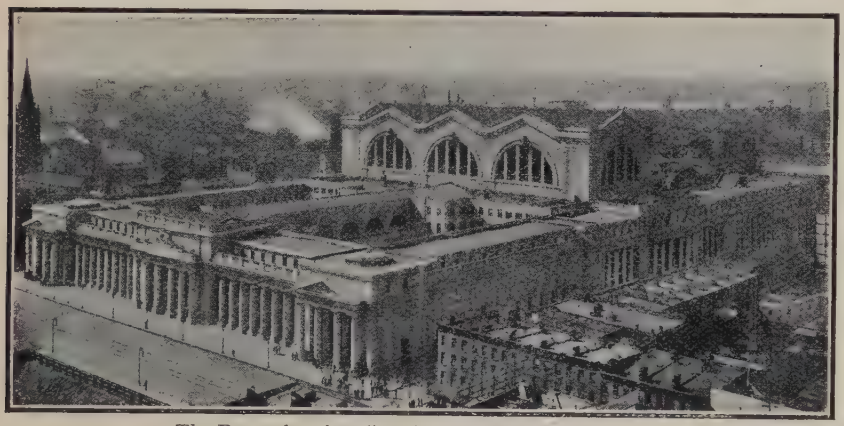
Locks on the Erie canal at Lockport.

state chiefly through the port of New York City. Buffalo, Ogdensburg, Plattsburg, Niagara Falls, and Rochester are also **ports of entry.**

A port of entry is a place where the government has a custom house with officers who examine all goods brought in from foreign countries and collect the duty or tax which the importer is required by law to pay.

Sugar, tobacco, and fruits come from the West Indies; coffee, hides, and india-rubber from South America; tea and silk from China and Japan; and manufactured goods from Great Britain, France, Germany, and other European countries. Many products are brought to New York from other states to be manufactured or

shipped away. Among these are cotton from the South, wool from the West, and petroleum from the oil regions of Pennsylvania. Many materials are brought into the state which are partially manufactured, such as cotton and woolen cloths from



The Pennsylvania railroad station in New York City.

the factories of New England, iron and steel from Pennsylvania, and lace trimmings and millinery from France. These go to the factories and workshops everywhere and come out in the shape of men's clothing, machinery, hats and dresses, and other articles.

Sibley College, the department of mechanical engineering at Cornell University.

With the exception of fruits, dairy products, and other farm products, the **exports** of the state are almost entirely manufactured goods. A vast amount of flour, meat, cotton, and grain from the South and West pass through the state for export. Refined oil and sugar, cigars,

clothing, hosiery and knit goods, coffee, spices, and confectionery are some of the articles that the state exports in large amounts.

Education. — The institutions for higher education in New York State include fifteen normal schools, twenty-seven colleges, and a large number of schools of medicine, law, and theology. The State Normal college is at Albany. Cornell University at Ithaca is the State college. Columbia University in New York City is now, in the number of students, the largest in the world. Vassar college at Poughkeepsie is the oldest woman's college in America.

QUESTIONS AND TOPICS. — (1) Rank of New York State. Describe the early trade of New Amsterdam. What led to the development of the central part of the state? (2) Name the four highland regions of the state. The highest peak. Give an account of each highland region. What are the three great valleys? History of the Hudson and Champlain valley. (3) Describe the two principal rivers. Name some important cities along each. What rivers on the border of the state? For what are they useful? What rivers drain the northern slope? What lakes on the border of the state? How useful? Describe the lakes of the central part. (4) Crops of the great valley. What is said of dairy products? Of fruits? Describe the canneries. The nurseries. (5) What mineral products are found in the state? Where is salt obtained? What is made from it? Name the chief manufactures of New York State. (6) Rank of New York City. To what does it owe its growth? Describe its foreign trade. Its manufacturing industries. (7) Make a list of the other leading cities of the state and write an important fact about each. Name the chief transportation routes of the state. Make a list of the leading exports and imports of New York and the places where each is obtained.

NEW JERSEY

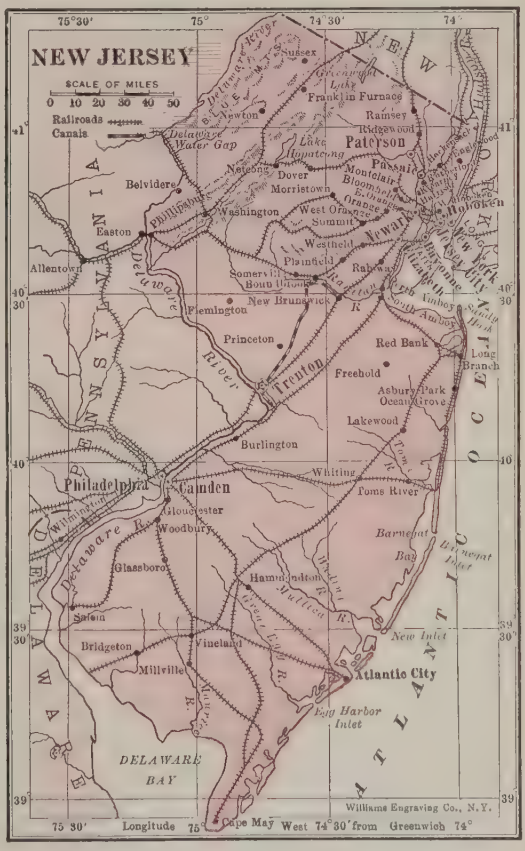
Answer the questions under the MAP, *page* 115.

Size, Location, and Rank. — New Jersey is one of the smallest states — only three others being less in area — yet it ranks thirteenth in population and sixth in the value of its **manufactures**. It is almost exactly the same size as Massachusetts, but falls far behind that busy state both in population and wealth.

The **position** that New Jersey occupies along the Hudson river, opposite the great city of New York, and its nearness to the cities of Philadelphia, Baltimore, and Washington, make it a much traveled highway, and New Jersey has more **railroads** per square mile than any other state. With the exception of the New York Central and the Pennsylvania, the railroads for the West and South have their terminals in **Jersey City**, connected with the New York shore by ferries and tunnels. The large cities on its borders are of advantage to the state in other ways. Thousands of business men have built their homes in its pleasant suburban

towns, and the Atlantic shore is almost a continuous line of beautiful summer residences. The growing of **fruits** and **vegetables** for the markets of the large cities is such an enormous industry in New Jersey that it has received the name of "The Garden State."

Surface and Climate. — The northern part of the state is crossed from southwest to northeast by numerous low ranges of the Appalachian system, the highest of which is the **Blue**, or **Kittatinny**, range on the extreme northwestern border. It is through this range that the Delaware river has cut the well-known **water-gap.** East of the Blue range are the beautiful Kittatinny valley and other ranges and valleys noted for their fine scenery. This part of the state abounds in **streams**, many of which supply water power. Many of them widen into lakes, having been dammed by the deposits of the glacial period. The marks of the **glacier** are shown upon the rocks in many places, and a line of gravel hills and boulders extends irregularly across the state from Perth Amboy to Belvidere.

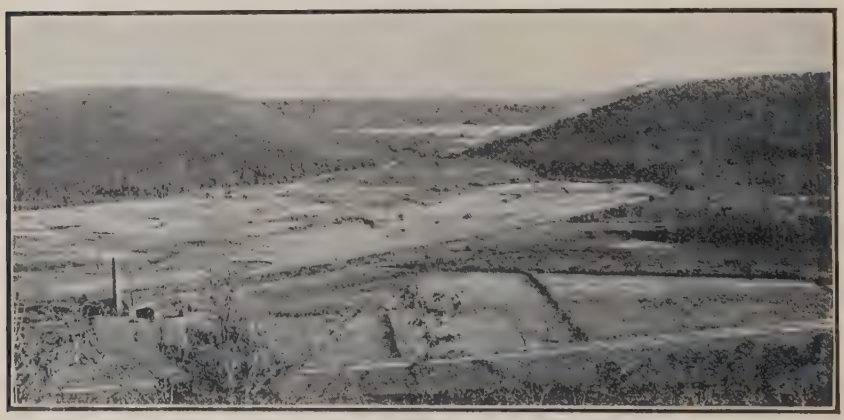


Two of the largest of these glacial lakes are Greenwood lake and lake Hopatcong, attractive as summer resorts on account of their high elevation and picturesque surroundings. The prevailing **rocks** of the northern section are sandstones and

limestones, with a considerable amount of trap, or **volcanic**, rock which has been forced up through the sandstones from beneath. On the summit of "First" mountain of the Watchung ranges, near the city of Orange, the trap rock has formed into

Scenery in northern New Jersey.

vertical **columns** resembling those of the Giant's Causeway on the coast of Ireland. The most extensive range of volcanic rock skirts the shore of the Hudson from the New York boundary to Jersey City and is known as the **Palisades**. They rise ver-



The village of Newfoundland, situated in Pequannock Gap in the mountains of northern New Jersey.

tically from the river to a height of several hundred feet and extend to a considerable distance inland. This volcanic rock is very hard and is extensively used for making paving stones and for macadamizing roads and streets.

South of the highland region the surface becomes gently rolling with numerous hills and valleys, which characterize the **central part** of the state. The southern and southeastern parts belong to the Atlantic coast plain and are flat and sandy. The soil of this section is a mixture of the silt deposits of the rivers and the sand washed up by the sea. When kept fertile it is well adapted to the growth of peaches and of small fruits and vegetables of every sort.

The **southern part** of the state is a desolate region called the **Pine Barrens.** Some of this region has been cleared to make way for farming. The coast is generally flat and sandy, but there are many ranges of sand hills, which attain a height of 400 feet in the Navesink highlands. Just beyond the shore line and parallel with it are many long **barrier beaches** which are thickly planted with summer resorts and swarm with visitors during the hot season.

Natural Resources and Industries. — The fertile valleys in the northern part are productive of good crops of grass and grain and

Works of the New Jersey Terra Cotta Company, Perth Amboy.

support extensive **dairying** industries. The milk and butter go to supply the markets of New York City. The central part of the state is suitable for a variety of crops. **Poultry farming** and **market-gardening** receive the most attention; there are many orchards of apples, plums, cherries, and peaches, and vast fields of strawberries, melons, and other small fruits and vegetables. The sandy regions nearer the coast are also well adapted to "truck-farming" and are especially devoted to the cultivation of grapes, asparagus, melons, and strawberries. Extensive marshy areas have been planted with the **cranberry**, and New Jersey is the leading state in the production of this fruit.

Minerals. — There are deposits of **zinc** in the northern part of the state which are said to be among the richest in the world. The same section affords also both iron and limestone. Across the central part extends a broad belt of green sand or marl, which forms a valuable fertilizer. **Clays** suitable for brick and china ware, tiling and terra-cotta work are found near Trenton and Amboy and form the basis of two of the state's leading industries. In the western part are vast deposits of **cement** rock.

Fisheries. — The salt lagoons off the coast contain productive beds of **oysters** and **clams**; the taking of these and their transportation and sale give employment to a large number of men and boats. There are also valuable shad and herring fisheries in both the Delaware and Hudson rivers.

Manufactures, Cities, and Commerce. — New Jersey is well

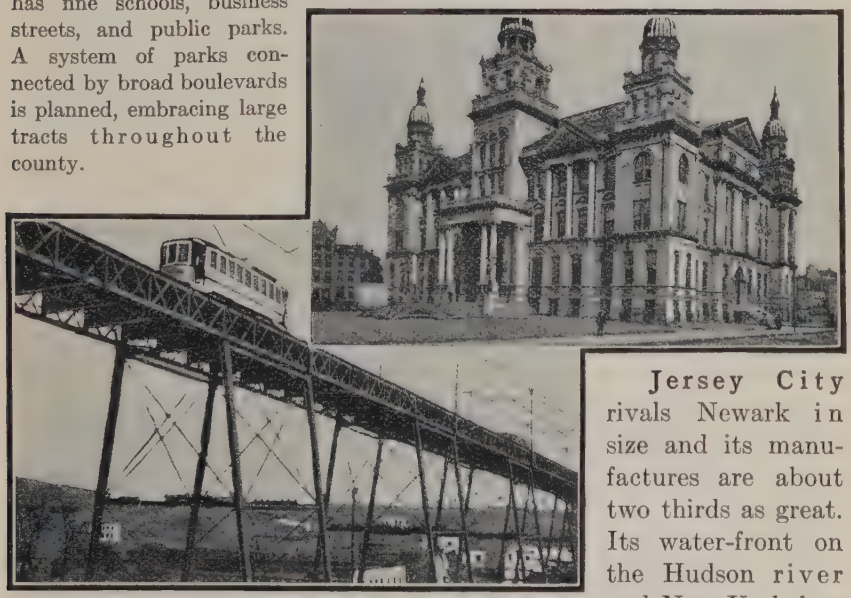
View on the Raritan canal near New Brunswick, New Jersey.

situated for manufacturing, since two of the trunk lines of railway, which cross the state, run directly to the coal regions of Pennsylvania; **coal** may be brought by water also from Philadelphia and Easton. The Morris **canal** connects **Newark** bay with the Delaware at Phillipsburg, and the Delaware and Raritan canal connects Trenton on the Delaware with Raritan bay. These canals, however, have fallen into disuse owing to the competition of the railroads. **Newark,** on the Passaic river and also near the head of Newark bay and the mouth of the Hackensack river, is the metropolis of the

state and the chief **manufacturing** city. In the value of its manufactures Newark is the eleventh city of the United States. The most valuable **products** are leather, malt liquors, jewelry, machinery and iron work, and paper and books; other products extensively made are hats, chemicals, boots and shoes, varnish and paints, clothing, silverware and refined gold and silver, electrical supplies, harnesses and trunks, celluloid, and thread. The total value of all these products exceeded $200,000,000 in 1910.

City Hall, Newark.

Adjacent to Newark and almost a part of the city are **Bloomfield**, **Montclair**, and the **Orange towns**, aggregating a population of nearly half a million. Newark has fine schools, business streets, and public parks. A system of parks connected by broad boulevards is planned, embracing large tracts throughout the county.

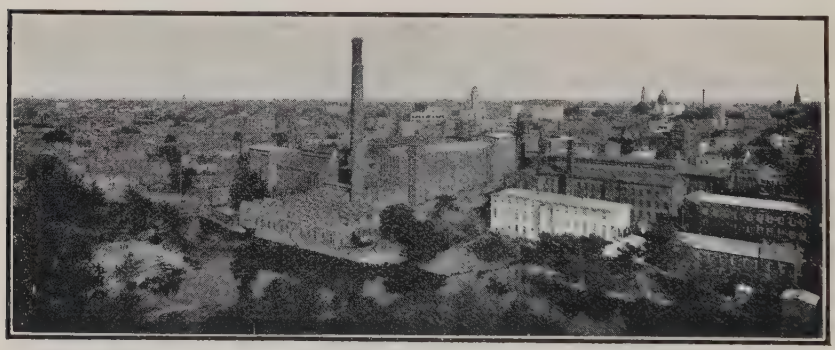


The City Hall and elevated railway in Jersey City.

Jersey City rivals Newark in size and its manufactures are about two thirds as great. Its water-front on the Hudson river and New York bay is a famous **railway terminus** and **shipping-point**, where vessels engaged in the coast trade and in foreign trade are constantly loading and unloading.

Among its more important products are tobacco, packed meats, soap and candles, cars and carriages, chemicals, machinery, silk, rubber goods, malt liquors, lumber, and refined sugar. Numerous ferry lines and two tunnels connect Jersey City with New York. Jersey City has an excellent school system and one of the best high schools in the state.

Paterson, the third city, utilizes the water power of the falls of the Passaic river in many of its factories. It is the leading city of the United States in the manufacture of silk; cotton and linen thread, shirts, paper boxes, locomotives, and machinery are also important products. **Camden** is a railroad and ship-building center; it manufactures worsted goods, machinery, oil cloth, and leather. **Trenton**,

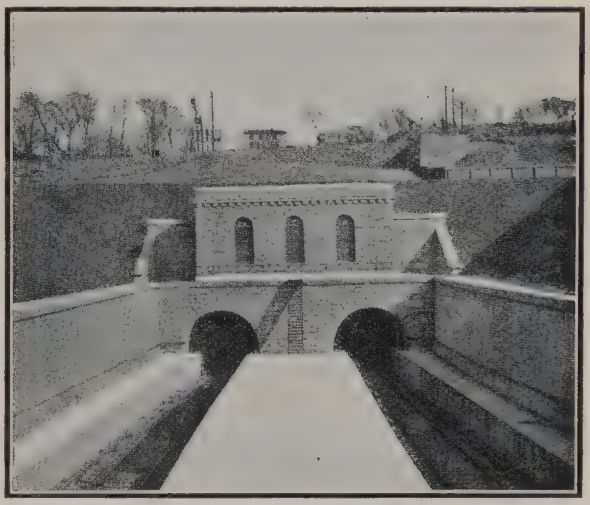


A view of the silk factories of Paterson, which produce annually $25,000,000 worth of goods.

the capital of the state, is famous for its potteries; iron and steel, rubber goods, and machinery are also made. It has the Normal school and other state institutions. **Hoboken**, north of Jersey City, is a shipping and manufacturing town. Two of the great transatlantic steamship lines have their docks there. **Elizabeth** is a coal port and is engaged in ship-building. The Singer sewing-machine works, the largest in the world, are located there. **Bayonne**, built on the peninsula south of Jersey City, has huge oil refineries belonging to the Standard Oil Company. The crude oil is brought through pipes from the wells in Pennsylvania, and refined oil, or kerosene, is shipped from here to all parts of the world.

Atlantic City, **Long Branch**, **Asbury Park**, **Ocean Grove**, and **Cape May** are

noted seaside resorts. Other large towns, as **Orange**, **East Orange**, **South Orange**, **Montclair**, **Plainfield**, **Bloomfield**, and hosts of smaller ones, are noted as places of residence for men engaged in business in New York City.



The New Jersey entrance to the Pennsylvania tunnels under the Hudson river.

History. — New Jersey was part of the Dutch claim of New Netherland, and the first settlement of the state was made by them at **Bergen,** where Jersey City now stands. The territory was seized by the English in 1664 and was finally sold to William Penn and a company of Quakers. Under their administration it prospered and was made a royal colony in 1702. New Jersey took an active part in the Revolution and the **critical battle** of the war was fought at Trenton; Monmouth and Princeton were other American victories. It was these victories that helped to secure the aid of France and turned the tide against the British.

The state capital at Trenton.

Education. — The state has many educational institutions of high rank. **Princeton** university is the oldest and largest. At New Brunswick is **Rutgers** college, which is

also the State Scientific school. Stevens Institute of Technology is at Hoboken and **Seton Hall** college at South Orange.

QUESTIONS AND TOPICS. — (1) Explain the advantages of New Jersey's location. How does this influence her industries? (2) Describe the surface of each of the three natural sections of the state. Natural resources of each section. What is said of the minerals? Of the fisheries? (3) Explain what is meant by a good location for manufacturing. Which of these advantages has New Jersey? What are the chief manufactures of Newark? Of Jersey City? Make a list of the other important cities and the leading industries of each. (4) Where was the state first settled? What part did it take in the Revolution?

PENNSYLVANIA

Answer the questions under the MAP, *page* 115.

Surface, Climate, Soil. — Pennsylvania is divided into three sections by the Appalachian mountains. The southeastern part lies in the Coastal plain and the Piedmont belt; the central part is in the

View on the Schuylkill river in the city of Philadelphia.

mountain region; the northern and northwestern parts are in the Allegheny plateau. The **climate** is mild in the southeastern section, but the rest of the state is colder and has long winters with heavy snows. The **soil** is fertile and well suited to growing grain.

The farms, forests, coal mines, and oil wells of Pennsylvania are the chief sources of its wealth. The coal mines have made the state the greatest iron and steel manufacturing region in the world. Iron ore can be cheaply brought from the mines of the lake Superior region. Because a vast amount of fuel is needed to extract iron from the ore, to carry the ore to the fuel is cheaper than to carry the coal to the ore.

Agriculture; Forest Products. — The plains and valleys of Pennsylvania, like those of New York, are rich farming land. The state raises large crops of corn, wheat, oats, hay, potatoes, and tobacco.

Works of the Hamilton Watch Company at Lancaster.

Dairying and the raising of cattle, sheep, and hogs are also important industries. Much **hardwood timber** is cut from the forest-covered mountain sides and sawed into lumber; oak and hemlock barks are obtained in the northwestern part of the state to supply the tan-

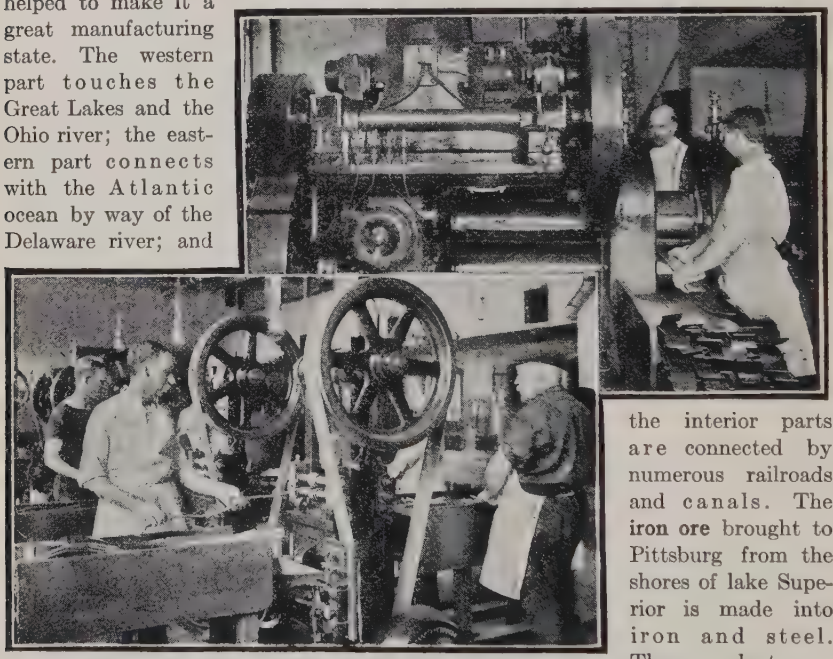
A View of Wilkes-Barre, on the Susquehanna river.

neries. These barks contain a substance called **tannin**. Hides placed in a solution of bark absorb the tannin, which changes them into leather.

Manufacturing Industries. — Pennsylvania is the foremost **min-**

ing state in the country and the second in **manufacturing**. It produces nearly half the coal mined in the United States and far surpasses all the other states in the manufacture of hardware and machinery.

The **favorable location** of Pennsylvania as well as its **vast supplies** of coal has helped to make it a great manufacturing state. The western part touches the Great Lakes and the Ohio river; the eastern part connects with the Atlantic ocean by way of the Delaware river; and the interior parts are connected by numerous railroads and canals. The **iron ore** brought to Pittsburg from the shores of lake Superior is made into iron and steel. These products are sent from the **furnaces** and **rolling mills** to **foundries** and **machine shops** in neighboring states to be made into machinery and hardware.



Coining gold eagles at the Philadelphia mint. In the first view the gold is rolled out into strips of required thickness. The second view shows the process of cutting these strips into disks which are afterwards stamped between dies.

Iron and Steel Products. — We have learned that iron (*pig iron*) is made by melting together in a blast furnace iron ore, limestone, and coke or coal. The bars of pig iron may then be sent to a foundry where cast-iron articles are made. When pig iron is melted and allowed to harden again, it is called *cast iron*.

Stoves, many parts of wagons, plows, and other farming implements, and the

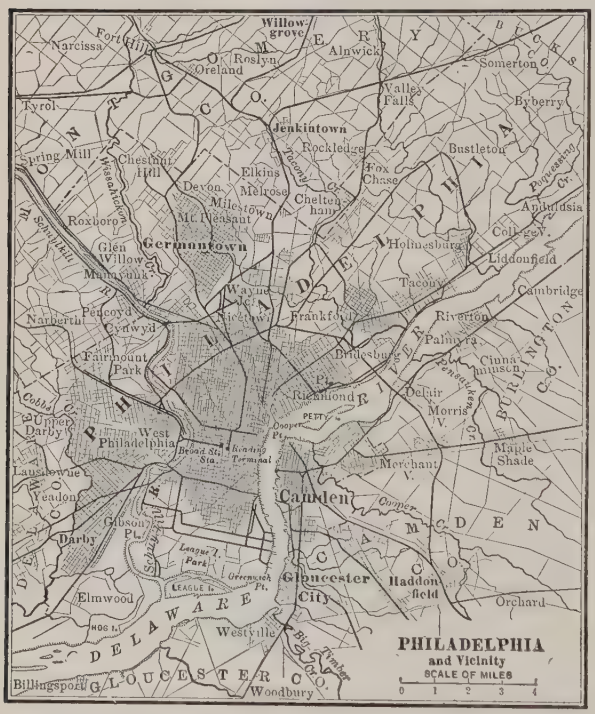
supports of sewing-machines and school desks are made of cast iron. In making iron castings a wooden pattern is first made; from this a mold is made in sand and the melted iron poured into the mold. Among the common articles made from steel are **rails** for railroads, armor plate for battle ships, materials of many kinds for **steel buildings** and **bridges**, and **pipe** for water, gas, and sewers in our cities. These articles are made in rolling mills. When steel must be made very hard and strong, it is hammered or forged. A vast number of articles, such as wire, nails, screws, bolts, rivets, tools, and knives, as well as engines and boilers, locomotives, and many kinds of machinery, are made from iron and steel in Pennsylvania.

Petroleum and **natural gas** are found in the same regions as coal. Holes are bored into the earth until the oil or gas is reached. A pipe is then driven down through which they are led to any place desired. Some oil wells flow naturally for a time, but in most cases the oil is pumped up. **Oil-refining** is one of the great industries of Philadelphia and other seaports.

City Hall, Philadelphia, Pa.

Cloths, carpets, and leather are important products in Pennsylvania. In the making of *textile* goods this state is second only to Massachusetts. **Carpets** and **rugs** are the most important and are made almost entirely in Philadelphia. This city makes more carpets than all the rest of the United States combined. Curtains and upholstery are also made. Other textiles made in large quantities are silk, cotton and woolen goods, hosiery, and underwear. Cotton goods are made at Philadelphia and Chester, silk at Philadelphia, Williamsport, and York. In woolen and worsted goods Philadelphia is next to Providence.

History. — Pennsylvania was one of the old "thirteen colonies." Because it stood midway between the northern and southern states, it was compared to the keystone of an arch and was named the **Keystone State.** The land was bought of the English crown by the famous Quaker, **William Penn.** He purchased the land from the Indians as well as from the king, and made a treaty of friendship with them which was never broken.



In 1682 **Philadelphia** was laid out. The laws of Penn were very liberal and colonists flocked to the city and colony from all parts of Europe. Philadelphia soon became the most populous and wealthy city in all the colonies. The **Declaration of Independence** was signed there in Independence Hall in 1776. The **Constitution** of the United States was framed there in 1787. From 1790 to 1800 Philadelphia was the **capital** of the new nation. The battle of **Gettysburg** was fought on the soil of Pennsylvania; the old battle field, now a national cemetery, is one of the famous historical spots of our country.

Manufactures and Cities. — The largest city of the state is **Philadelphia;** it is also third in the Union and one of the great cities of the world. It extends along the Delaware river for 23 miles, and the Schuylkill flows through the city. The Delaware at this point is an estuary and a good harbor, and therefore Philadelphia is practically a seaport. Railroads are numerous and extend in all direc-

tions. Philadelphia ranks as the third city in the country in the extent of its manufactures, the most valuable of which are machinery and iron work, woolens and worsteds, carpets and rugs, leather, and malt liquors. Iron work includes steel ships and locomotives. A host of other industries are of vast importance.

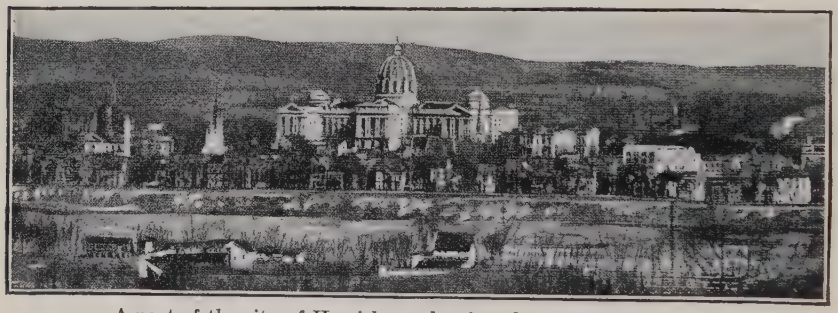
Pittsburgh, the "Steel City," is second in size and stands at the junction of two rivers, the Allegheny and Monongahela which unite here to form the Ohio.

In the manufacture of iron and steel Pittsburgh leads the world. It also leads in the making of electrical and other machinery. Other products are malt liquors, glass, and pottery. Pottery requires a vast amount of coal to bake the clay, and natural gas is used in heating the glass furnaces. Pittsburgh is the seat of many educational and charitable institutions, among which are the Carnegie Institute and Free Library. Allegheny City, on the river of that name opposite Pittsburgh, is now united with the latter city under the same municipal government. Owing to its favorable location for transportation and for manufactures depending upon supplies of coal, Pittsburgh has had a remarkable growth and is now the eighth city of the United States in population and fifth in the value of its manufactures. As a center of wealth and cultivation it is also one of our leading cities.

Independence Hall, Philadelphia. Here Washington was chosen Commander-in-Chief of the first American army, and here, too, the Declaration of Independence was signed. The building is used as a Museum and contains the famous Liberty Bell that was rung on the first Independence Day.

The first structure erected on the site of Pittsburgh was a fort built by George Washington, who predicted that a great city would one day stand at the meeting-place of the three rivers. This fort was seized by the French and named Fort Duquesne. Near Pittsburgh occurred Braddock's defeat and the battle of the Great Meadows.

Scranton, in the midst of the anthracite coal regions, is noted for iron and steel, machinery, and silk. **Harrisburg** is the capital of the state, and **Lancaster**, once the capital, is the oldest inland city.



A part of the city of Harrisburg showing the new state Capitol.

QUESTIONS AND TOPICS. — (1) Division of the surface. What is said of the soil and climate? What are the chief natural resources? Where is iron ore obtained? Why is it brought to Pennsylvania to be smelted? (2) In what form is coal found in the earth? How is it mined? Write a short account of the way in which coal was formed. (3) Farming land. Leading farm products. What is said of the forest products? What is tannin? (4) What is pig iron? Cast iron? What articles are made from cast iron? Name some articles made from steel. What cities make textile goods? (5) How are petroleum and natural gas obtained? What products are made from petroleum? (6) Name some incidents in the history of Pennsylvania and Philadelphia. Name the chief cities of the state and write a short paragraph about each.

ANNUAL VALUE OF THE CHIEF PRODUCTS OF THE NORTH ATLANTIC STATES

Maine

Products	Value	Products	Value
Manufactures	$144,020,000	Lumber	$14,958,000
Hay	19,551,000	Potatoes	13,748,000
Live Stock	17,106,000	Fisheries	3,257,000
Dairy Products	16,571,000	Granite	2,027,000

New Hampshire

Manufactures	$123,700,000	Dairy Products	$9,017,000
Hay	11,116,000	Potatoes	1,747,000
Farm Animals	10,555,000	Granite	867,000

Vermont

Manufactures	$63,084,000	Marble	$4,680,000
Dairy Products	22,622,000	Granite	2,452,000
Farm Animals	17,841,000	Potatoes	2,046,000
Hay	16,155,000	Corn	1,443,000
Lumber	4,917,000	Oats	1,404,000

Massachusetts

Manufactures	$1,124,000,000	Lumber	$6,157,000
Farm Animals	15,798,000	Potatoes	3,358,000
Dairy Products	14,438,000	Granite	2,027,000
Hay	12,720,000	Corn	1,447,000
Fisheries	7,095,000	—	—

Connecticut

Manufacturing	$3,631,068,000	Potatoes	$3,586,000
Farm Animals	10,932,000	Fisheries	2,982,000
Hay	10,885,000	Lumber	2,982,000
Dairy Products	9,774,000	Corn	1,845,000
Tobacco	3,648,000	Building Stone	1,126,000

Rhode Island

Manufactures	$202,110,000	Fisheries	$1,752,000
Farm Animals	2,600,000	Minerals	709,000
Dairy Products	1,738,000	—	—

New York

Manufactures	$2,488,000,000	Fisheries	$4,594,000
Farm Animals	125,584,000	Limestone	2,585,000
Dairy Products	115,677,000	Rye	2,176,000
Hay	71,028,000	Salt	2,137,000
Potatoes	26,280,000	Iron Ore	2,098,000
Oats	18,309,000	Petroleum	2,072,000
Corn	17,849,000	Sand	1,775,000
Lumber	15,702,000	Wool	1,475,000
Wheat	9,790,000	Barley	1,318,000
Buckwheat	5,183,000	—	—

New Jersey

Manufactures	$774,369,000	Cement	$2,416,000
Farm Animals	16,612,000	Wheat	2,146,000
Dairy Products	12,182,000	Building Stone	1,531,000
Hay	9,009,000	Iron Ore	1,162,000
Corn	6,733,000	Rye	1,018,000
Potatoes	5,904,000	Zinc	651,000
Fisheries	3,069,000	—	—

Pennsylvania

Manufactures	$1,142,192,000	Petroleum	$16,881,000
Coal	165,000,000	Potatoes	15,464,000
Farm Animals	102,439,000	Oats	12,974,000
Dairy Products	79,552,000	Building Stone	6,370,000
Hay	54,633,000	Rye	4,406,000
Corn	34,160,000	Slate	3,903,000
Wheat	26,629,000	Buckwheat	3,845,000
Lumber	21,111,000	Wool	1,840,000
Natural Gas	19,104,000	—	—

CHAPTER IX

THE SOUTH ATLANTIC STATES

Answer the questions under the MAP, *page* 166.

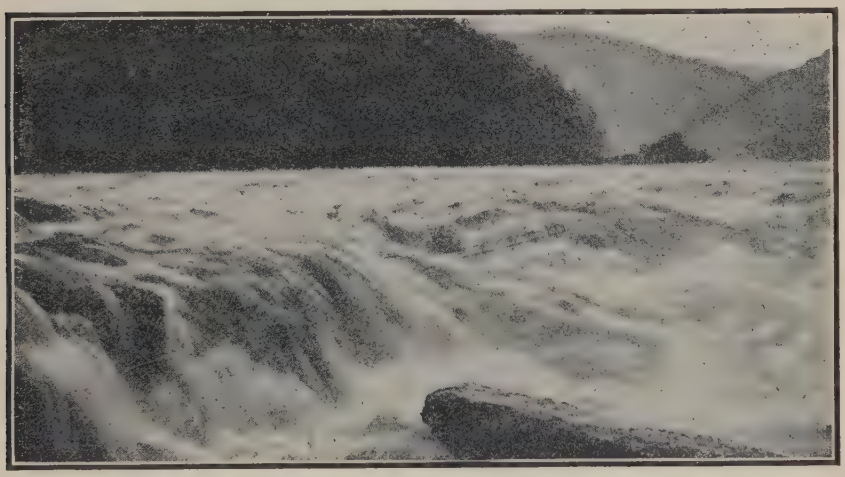
Natural Features. — These states include Delaware and Florida, extending through about fifteen degrees of latitude. Half of their **surface** lies in the low Coastal plain. Delaware and Florida are entirely within this plain, while the western parts of the other states are a part of the Appalachian system of mountains and plateaus.

The **climate** of this group of states varies from perpetual summer in the south to extremes of temperature in the mountains of the west. There is abundant **rainfall** in every part, although it becomes less as distance from the ocean increases, while the **temperature** varies with latitude and elevation. In the south are some of the most popular **winter** resorts of the country, while among the mountains the people of the coast towns find relief from the oppressive **summer** climate.

On account of its flat surface and heavy rainfall the parts of the coast plain near the ocean are covered with a dense growth of **vegetation**. In the cleared sections **rice** is the chief crop. **Forests** of pine border the swampy region. The most valuable timber has been cut, and the land thus cleared is devoted to farming. The soil is light and sandy, but is favorable for the growth of vegetables and

States	Area, Sq. Miles	Population Census of 1920	Capital	Chief City	Population 1920
Delaware	2,370	223,003	Dover	Wilmington	110,168
Maryland	12,327	1,449,661	Annapolis	Baltimore	733,826
Virginia	42,627	2,309,187	Richmond	Richmond	171,677
West Virginia	24,170	1,463,701	Charleston	Wheeling	56,208
North Carolina	52,426	2,559,123	Raleigh	Wilmington	33,372
South Carolina	30,989	1,683,724	Columbia	Charleston	67,957
Georgia	59,265	2,895,832	Atlanta	Atlanta	200,616
Florida	58,665	968,470	Tallahassee	Jacksonville	91,543
District of Columbia	70	437,571	— — —	Washington	437,571

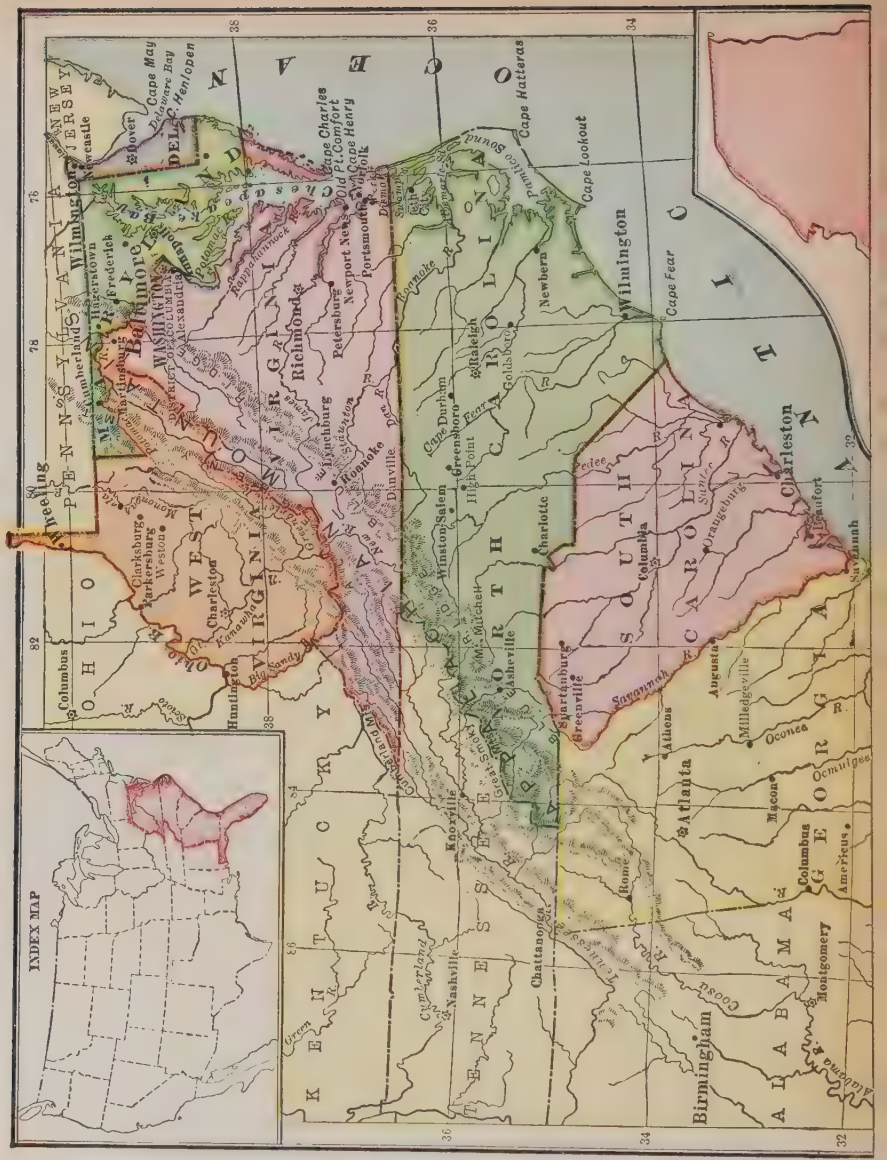
fruits. The parts of these states lying west of the coast plain are given to general **farming**. Among the mountains, **mining** and **quarrying** are leading industries. Coal and iron are found in every state except Florida, while West Virginia is a leading state in petroleum. Marble, granite, and limestone are extensively quarried. Phosphate rock is abundant along the coast, especially in Florida, where extensive deposits are reserved by the United States Government. The leading farm crops are cotton, corn, and tobacco. Rice and sugar cane are next in value, while truck-farming is of growing importance. Large sections of the coast plain, all the way from Maryland to Florida, are given to the cultivation of peaches, strawberries, and a variety of fruits and vegetables.



New Richmond falls on New river, West Virginia.

Industries. — The natural resources and products of this group of states are the source of their **manufacturing** industries. First in importance among their products are cotton, lumber, naval stores, and tobacco. West Virginia and Georgia make use of their coal and iron deposits in the production of iron, steel, and machinery. The preparation of rice for market is also classed as a manufacturing industry since special machinery is required.

QUESTIONS AND TOPICS. — (1) Location of the South Atlantic states. In what natural sections do they lie? Describe their climate. What contrasts do you find? (2) What are the products of the coast plain? What is said of the forests? Name the leading minerals found. What farm crops are produced? What is said of gardening? How do you account for the manufacturing industries?



MAP STUDIES. — (1) In what natural division do these states mainly lie? Find their location in latitude and longitude. How do they compare in size with the North Atlantic states? (2) What about their coastline? Trace the fall line on the map. Which states lie entirely in the Coastal plain? Which state lies in the Allegheny plateau? (3) What inlets along the coast? What capes? Which state has no sea-coast? What states border on the Chesapeake bay? (4) What mountain ranges cross this group? What rivers form state boundaries? In what directions do these states slope? (5) Write a list of them in order of size with the capital and chief city of each.

MAP STUDIES FOR EACH STATE. — (1) What water boundaries has this state? (2) What states or countries border it? (3) What mountains, rivers, or lakes does it contain? (4) What canals or railroads cross it? (5) What is the latitude of its largest city? (6) What is the time at this city when it is 12 o'clock noon at New York? (7) How does this state compare with your state in size and population? (8) Through what seaport is the commerce of this state carried on? (9) Name the routes by which goods are sent to this port. (10) On an outline map of this group of states insert the names of the capital, the chief cities, and the boundaries of this state.

DELAWARE

Answer the questions under MAP, *page* 167.

Natural Features. — With the exception of Rhode Island, Delaware is the smallest state in the Union; but it ranks far below that state in industries and wealth. The **surface** of the state is nearly level. Although in the north there is some rolling land, it nowhere attains a height exceeding 300 feet. A ridge of sandhills extends north and south through the central part of the state dividing the

Bringing peaches to market at Bridgeville, Delaware.

drainage between the Delaware river and Chesapeake bay. The **climate** is mild and moist throughout the year. There are no extremes of heat and cold, and both storms and drouths are almost unknown. The **soil** is chiefly sandy or alluvial, and when fertilized is very productive. The **mineral** resources of the state are limited to granite, glass sand, and marl, which is useful as a fertilizer. The **fishing** industries employ about 2,000 persons, the chief product being shell-fish.

Industries and Cities. — Farming, fruit-growing, and gardening are the most profitable industries of the state, which are dependent on its natural resources. Corn, wheat, and hay are the leading **farm**

crops. Among garden products the tomato is the most abundant. Peaches, apples, and pears are the leading fruits. The state has long been noted for its peach orchards, and millions of baskets of fruit are sent every season to the markets of New York and Philadelphia. Besides the fruit, which is sold fresh, extensive canning and preserving industries are supplied.

The **manufactures** of Delaware are of greater value than the industries which depend upon the soil. Although the state has no coal or metals, these are easily obtained from the neighboring states. **Wilmington**, at the junction of the Brandywine and Delaware rivers, is the

A part of the city of Wilmington.

chief commercial and manufacturing city. The former supplies excellent water power. The most valuable product of Wilmington is leather. There are also large car shops, ship yards, machine shops, and canneries. Gunpowder and other explosives are extensively made near the city.

Railway cars of various styles are built, usually on special orders received from different companies. They include passenger cars of the day-coach variety, freight cars of the ordinary box variety, coal cars, tank cars for oil, and refrigerating cars. Special cars also are constructed for cattle, sheep, and swine.

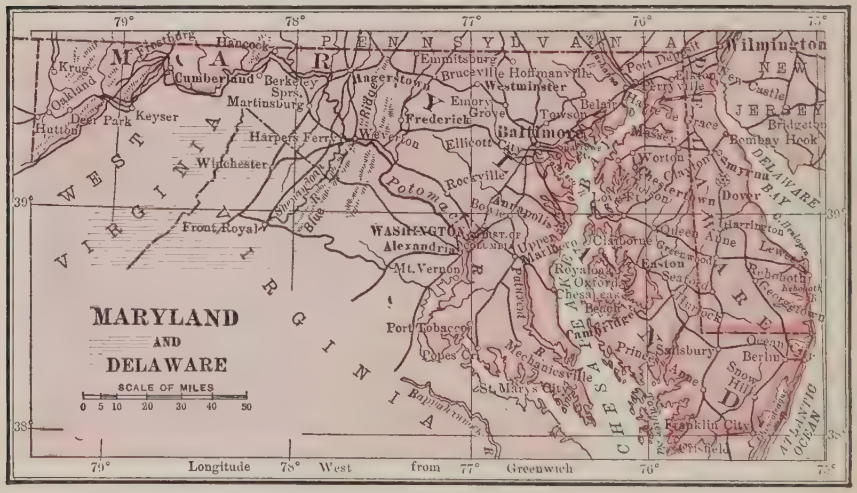
Dover, the capital, stands on the high ground in the central part of the state.

QUESTIONS AND TOPICS. — (1) Location and size. Surface and climate. Soil and products. (2) Natural resources of Delaware. What industries depend upon these? What is the chief manufacturing city? Describe its products. Name and locate the capital.

MARYLAND

Answer the questions under MAP, *page* 167.

Location and Natural Features. — This state lies mainly in the Atlantic plain. In the western part there are rolling hills and low mountains. The eastern half is nearly cut in two by the **Chesapeake** bay, which has numerous harbors and valuable fisheries.



The land east of the bay, called the "**Eastern Shore**," is low and sandy. It was formerly covered with pine forests, but is now devoted to farming and gardening. On the "**Western Shore**" similar occupations prevail, but the land is considerably higher and the climate more agreeable. The **climate** is extremely mild, the temperature at Baltimore averaging 34 degrees in January. The western part of the state is much colder.

Resources and Industries. — The **farming** and **gardening** interests of Maryland are the largest source of wealth. Corn, wheat, hay, and tobacco are the chief farm crops. Dairy products are next in value. Among fruits, peaches and strawberries are the most valuable.

The fruit canneries put up enormous quantities of fruit. In 1905 the tomato output exceeded 50,000,000 cans, the largest of any state.

The **fisheries** rank in value next to the farming industries. They employ more men and boats than those of any other state. The **oyster beds** of the Chesapeake cover about 200,000 square miles and furnish the most valuable part of the catch. Canned oysters are another enormous output.

The Washington Monument at Baltimore.

The chief mineral is bituminous **coal**. One variety, known as "blacksmith" coal, is found chiefly in this state. Other **minerals** are pottery clay, building stone, iron ore, and some minor products, among which are gold, cement, and glass sand. The state produces annually about 300,000 tons of pig iron.

Cities and Manufactures. — The chief city and manufacturing center is **Baltimore**. Its location on Chesapeake bay gives excellent shipping facilities. Its leading **products** are clothing, tobacco, canned goods, machinery, and packed meats. The factories employ about 80,000 persons, and the value of the annual output exceeds $180,000,000.

Baltimore is an important railway center and a receiving and distributing point for **foreign trade**. The principal **exports** are meat products, tobacco, cotton, grain, cattle, refined oil, copper, iron, and steel. Among the **imports** are metal products, coffee, drugs, and chemicals. Baltimore is the seat of numerous educational and benevolent institutions, among which are the Johns Hopkins University and Hospital. **Annapolis** is the state capital and the seat of the United States Naval Academy.

History. — Maryland was the third of the thirteen colonies, having been first settled at St. Mary's in 1643. Annapolis was founded in 1683 and Baltimore in 1729. The proprietor of the colony was Lord Baltimore, an English Catholic, to whom it had been granted by Charles I. During the history of the colony there

Scenes in Baltimore. 1. The Standard Oil Company's pier on the Chesapeake with Federal Hill in the distance. 2. The Cathedral, seat of the oldest Catholic see in the United States.

were disputes about boundaries with both Virginia and Pennsylvania. The former led to the so-called Claiborne Rebellion. The latter was settled by a survey made by Mason and Dixon, who fixed the boundary line, which afterwards became famous as a boundary between the free and slave states on the Atlantic coast. After the purchase of the Louisiana territory an attempt was made to extend this boundary across the Mississippi river, which resulted in the Missouri Compromise.

QUESTIONS AND TOPICS. — (1) Location of Maryland. The Chesapeake. Eastern shore and western shore. Climate. (2) What are the chief industries of Maryland? Describe its farming and garden industries. What is said of the fisheries? Oyster beds? Mineral products? (3) Location of Baltimore. What are its chief products? Describe the trade of Baltimore. Name some events in Maryland history.

DISTRICT OF COLUMBIA

Location and Plan. — The District of Columbia embraces about 70 square miles of land on the eastern bank of the Potomac river, 108 miles from Chesapeake bay. This district was ceded to the United States by the state of Maryland for the site of the national capital. It is occupied by the city of Washington and is under the jurisdiction of the Federal Government. The surface is somewhat irregular and rises gently from the level of the river to an elevation of 420 feet at the highest point. This location was chosen

by George Washington as the site for the city, and was adopted by Congress in 1790. The city was planned under the direction of Washington on such a liberal scale as to the length and breadth of the streets that it has received the name "City of Magnificent Distances." The main streets run north and south, and east and west. Across this checker-board plan broad avenues run diagonally, so that three streets intersect, forming six corners with a large open plaza in the center. These plazas are adorned with statues and monuments. The principal thoroughfare is Pennsylvania avenue, which runs between the Capitol and the White House. Other

The Library of Congress.

avenues are named for the states, while the cross streets are named by numbers and letters.

Features of the City. — Washington is noted as the seat of the National Government and as a residential city. No commerce is carried on and there is little business except local trade. The chief attractions are the public buildings, of which the most famous is the Capitol. This stands near the center of the city, on the summit of Capitol Hill. It was begun in the administration of Washington and was not finished until 1863. It is famous for its graceful dimensions and for its dome, which rises 285½ feet above the pavement. East of the Capitol, occupying a square ten acres in extent, is the Library

of Congress, containing 1,500,000 volumes. The Treasury Building stands on Pennsylvania avenue, and near by is the White House, the residence of the President. Farther west is the building occupied by the State, War, and Navy departments. Other important public buildings are the Post Office Department, the Patent Office, the Pension Building, the National Museum, the Smithsonian Institute, the Department of Agriculture, and the Bureau of Engraving and Printing. The most famous monument of the city is that erected to George

The new National Museum at Washington.

Washington, 555 feet high, and the highest structure built of masonry in the world. Other objects of interest are the Corcoran Art Gallery, the Zoological Park, and the numerous hotels, theaters, and churches. Among the educational institutions are the George Washington University, the Catholic University, Georgetown College, and the Howard University. The city has an elaborate system of parks, the largest of which is Rock Creek Park, containing 2,000 acres.

QUESTIONS AND TOPICS. — (1) Location of Washington. How governed? Describe the location. Plan of the city. (2) For what is Washington noted? Describe the Capitol. Name the other public buildings and places of interest.

VIRGINIA

Answer the questions under MAP, *page* 167.

Surface and Climate. — In common with the other South Atlantic states, Virginia is divided into three regions of **elevation**. The part lying east of Richmond, which marks the fall line, belongs to the Coast plain. Between Richmond and the foot-hills of the Blue Ridge range is the upland region of the Piedmont. The remainder of the state consists of mountains, plateaus, and valleys belonging to the Appalachian mountain system. The western boundary is marked

A view in the Shenandoah valley, Virginia.

by the Allegheny and Cumberland ranges. Between the Blue Ridge and Allegheny ranges lies the picturesque and fertile **Valley of Virginia** traversed by the Shenandoah river.

The Shenandoah valley was repeatedly raided by both Northern and Southern armies during the Civil War, and was the scene of many stubborn contests. The chief town in the valley is **Winchester**, the scene of Sheridan's famous ride. Near the point where the Shenandoah joins the Potomac is Harper's Ferry, famous for John Brown's raid and capture.

The **climate** of Virginia varies in temperature from great mildness on the coast to extreme cold in the western mountain regions. **Rainfall** is abundant, varying from 52 inches at Norfolk to 38 inches at

Staunton. The **temperature** at Norfolk averages about 40 degrees in January and 79 degrees in July, while at Staunton, in the valley of the Shenandoah, the average in January is 33 degrees and in July 75.

Virginia History. — Virginia was the first permanent English colony established in America. The site of **Jamestown**, the scene of so many famous events, is now marked only by ruins. There slavery began as well as representative government. The colony was among the first to resist taxation by the English Parliament and furnished many illustrious soldiers and statesmen during the early years of our history.

Industries and Products. — The light sandy soil of the Coast plain is largely devoted to the cultivation of fruits and vegetables. Strawberries are produced in large quantities. The soil of the Piedmont plateau is heavier and more fertile. The most valuable crop is corn; then wheat, tobacco, and hay. Cotton is grown in the southern section, and the peanut crop of the southeastern section exceeds that of any other state.

Tomb of Washington, at Mount Vernon.

The soil in the western valleys has been formed by the decay of limestone, the prevailing rock. It is the most fertile in the state. The crops of the western section are chiefly wheat, corn, and other cereals, and apples. This section also has valuable dairying and stock-raising interests.

The **mineral resources** of Virginia consist of bituminous coal, granite, limestone, marble, and sandstone. Iron ore and lead are found, and a few other minerals in small quantities. The Coastal plain furnishes marl for fertilizing purposes and clays for making brick and tile.

The **forests** of Virginia vary with the elevation. The cypress, yellow pine, juniper, and cedar of the Coast plain are succeeded by the white pine and oak of the Piedmont, and this in turn by the evergreens and hard woods of the mountain section.

Although the best of the timber has been cut, the lumber product has steadily increased during recent years. The wood-pulp and paper industries have developed, and the value of planed lumber and building materials is one fourth that of the total product.

The **fisheries** in the Chesapeake are shared with Maryland. These industries employ about 30,000 men, and the annual product amounts to several millions of dollars. Many varieties of fish, oysters, and game are found on the bay. The canvasback duck and the terrapin, a valuable species of turtle, are obtained here.

Manufactures. — The manufactures of Virginia have trebled in value since 1880. This increase has been due to a growth in all departments of industry. The **milling** products now rank first in value,

The State Capitol and City Hall at Richmond, Virginia.

tobacco products second, and **machine** shop products and **peanuts** third and fourth. The flour industry centers in the Great Valley, tobacco industries in the cities of the Piedmont plain, and lumber industries in the various forest regions. Steel ships are built at Newport News and locomotives at Richmond. The preparation of peanuts centers in Petersburg and Norfolk. The last-named town has one of the best harbors on the coast and is the chief seaport of Virginia. Among its exports are coal, lumber, fish, peanuts, and garden products.

At the city of Portsmouth near Norfolk is a navy yard of the United States, and across the mouth of the James river is Old Point Comfort, a favorite winter resort.

Cities. — The capital and chief city of Virginia is **Richmond**. The

falls of the James afford water power for its numerous industries. The most valuable of these is the handling and manufacture of tobacco. The city is noted for its handsome streets and buildings as well as for its historical associations. **Norfolk** is the second city in size and **Newport News** the third. Other important towns are **Roanoke**, noted for iron and steel works, **Lynchburg** for its tobacco market and a college for women, which is the largest in the South. **Petersburg**, near Richmond, is also a tobacco center. Among its manufactures are iron, flour, silk, and peanut oil.

QUESTIONS AND TOPICS. — (1) Describe the three regions of elevation. Compare the climate of the several sections. Name some events in Virginia history. (2) Products of the Coast plain. Of the Piedmont. Of the western valley. Describe the minerals of Virginia. The forests. The fisheries. (3) What facilities for manufacture has Virginia? What raw materials does she supply? Name the leading manufactures. Locate each. (4) Make a list of the leading cities of Virginia and give the location and chief industries of each.

WEST VIRGINIA

Answer the questions under MAP, *page* 167.

Natural Features. — West Virginia lies entirely in the Allegheny plateau west of the high mountain ranges. The **surface** is rugged

A fleet of coal barges on the Great Kanawha river, West Virginia.

and picturesque. The **streams** have cut deep gorges in the plateau and there are numerous mountain peaks approaching 5,000 feet.

The entire state, with the exception of a small section in the northeast, is drained by the Ohio river and its branches. The **climate** is equable and healthful, although extremes of temperature are more marked than any other state in this group, ranging from 104 degrees in midsummer to 25 degrees in winter. The **soil** is a mixture of decayed limestone and clay and has great fertility.

Until the Civil War, West Virginia was a part of Virginia. The question of slavery, however, divided the state and West Virginia was set off in 1863.

Natural Resources. — About seven tenths of the area of this state lies in the Appalachian coal fields. The **coal** is bituminous and much of it is valuable for making coke. In the production of **petroleum** and **natural gas**, West Virginia is a leading state. The gas is piped for long distances and is used as fuel for driving pumps and drills in the mines, and in the iron and steel mills.

The Ohio river and the city of Wheeling, West Virginia.

The other mineral products of the state are iron ore, salt, clays, and mineral waters. The state was once covered by dense **forests** of hard wood with some pine, hemlock, and other conifers. Much of this has been cleared away, but the lumber product is still worth nearly $20,000,000 annually. The oak and hemlock furnish bark for extensive tanning industries.

Agriculture. — The fertile soil of West Virginia yields large amounts of corn, hay, wheat, and other farm **crops**. The best farming land is found in the Ohio valley. Dairying and wool growing are also valuable farm industries. The climate of the state is well adapted

to **apples** and other hardy fruits. The apple product is larger than that of any other state of this group.

Cities and Manufactures. — The leading manufacturing **industries** of the state are those connected with its natural resources. Foremost among their products are the lumber and timber. Iron and steel are second, and flour and mill products third. Next to these are leather, glass, and railway supplies. The glass furnaces are supplied with natural gas, the fuel best adapted to this industry. **Wheeling** is the principal city and manufacturing center. It is situated in the coal region and manufactures glass, lumber, and iron and steel goods. Other leading towns are **Huntington**, **Parkersburg**, and **Charleston,** the capital of the state. The first-named city is a shipping-point for coal and lumber; the second is engaged in refining oil; the capital has a large coal and lumber trade and many manufacturing industries.

QUESTIONS AND TOPICS. — (1) Location of West Virginia. Describe the surface. What is said of the streams? Drainage. Climate. Soil. (2) For what are the coal fields valuable? What use is made of natural gas? What other mineral products has this state? What is said of the forests? What industries depend on them? What are the chief farm products? (3) Name the three leading manufacturing industries. Make a list of the leading cities, stating some fact about each.

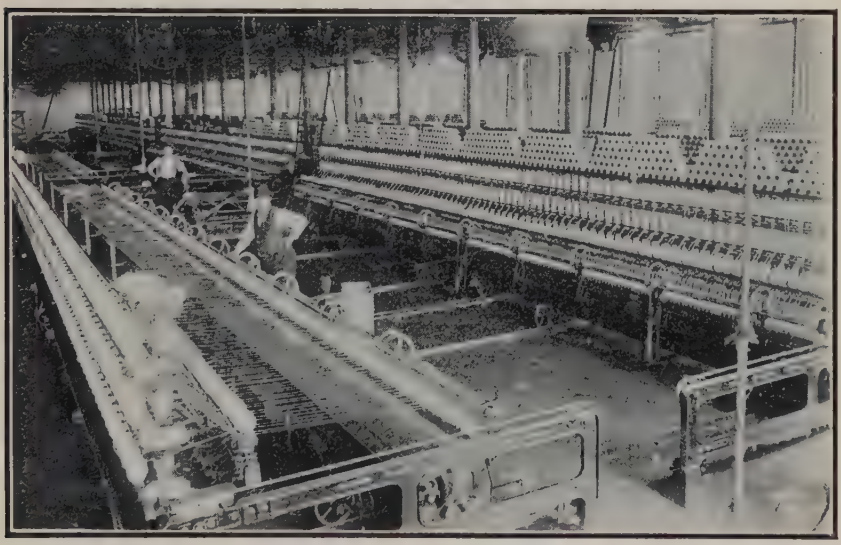
NORTH CAROLINA

Answer the questions under MAP, *page* 167.

Natural Features. — North Carolina lies in the three topographical regions common to the Atlantic states. The **Piedmont** attains a breadth of 300 miles, being greater than in any other state. In **elevation** it rises gradually from 500 feet at the edge of the Coast plain to 1,000 feet at the foot of the mountains. Numerous mountain ranges having local names cross the western part of the state. The Black mountains contain a number of peaks exceeding 6,000 feet in height. These are the loftiest in the Appalachian system. Mount Mitchel, the highest, is 6,711 feet. The **climate** of North Carolina resembles that of Virginia in range of temperature, but the **rainfall** is heavier, varying from 66 inches annually at cape Hatteras to 52 inches at Charlotte.

The Piedmont and Coast plain are crossed by numerous large **rivers**, the chief of which are the Chowan, Roanoke, Neuse, and Cape Fear. Other rivers rising in the state take a southerly direction through South Carolina or join the headwaters of the Tennessee on the western slope of the mountains.

Resources. — The Coast plain has **forests** of pine and cypress. The pine is of the "hard" variety and is the prevailing species in the higher parts of the plain. The forests of the Piedmont are of oak, hickory, and other hard woods, while the usual pines, hemlocks,



Spinning room in a Raleigh cotton mill.

cedars, mixed with deciduous trees, make up the forests of the mountain region.

Much pine is cut into flooring and trim for the interior of houses. Cypress and hard woods are made into barrel staves, shingles, and farm implements. North Carolina is lacking in mineral resources. It supplies building stone, brick and clay products, and is especially noted as the chief source in the United States for mica rock. Talc is also found abundantly. The inlets on the coast are excellent **fishing** grounds, supplying oysters, shad, mullet, and other varieties. **Cape Hatteras** is the extremity of a long narrow sand bank. This part of the coast is often visited by violent storms and, on account of the numerous shoals, is the most dangerous part of the Atlantic coast for ships.

Agriculture. — North Carolina is the second state in **tobacco** and the third of this group in manufactures. The most valuable crop, however, is **cotton**. Other farm crops are corn, wheat, and orchard fruits. The state ranks second in the production of sweet potatoes and third in peanuts.

Much of the corn crop is used in fattening swine. The gardening industry is highly developed, and enormous crops of strawberries, peaches, and other fruits and vegetables are grown for northern markets.

Manufactures and Cities. — The chief manufactures are **cotton goods** and **tobacco**. In cotton goods North Carolina ranked next to Massachusetts in 1920. Lumber products, flour, cottonseed oil, and fertilizers are next in value. All of these industries are favored by the nearness and abundance of raw materials. The chief manufacturing **towns** are Winston-Salem, Charlotte, Wilmington, Asheville, Greensboro, and Raleigh. Winston-Salem, Greensboro, and Durham lead in tobacco, and Raleigh in cotton industries. Wilmington is the largest city and chief seaport. Its exports are naval stores and lumber, both of which are among its manufactures. Newbern exports early fruits and vegetables. High Point is noted for its furniture factories, and Asheville as a health resort. Newbern, the old colonial capital, exports lumber, cotton products, and turpentine.

Shipping telegraph poles at Wilmington, North Carolina.

QUESTIONS AND TOPICS. — Surface features of this state. What is said of elevation? Temperature and rainfall. Describe the chief rivers. (2) Forests of each natural region. What varieties of trees are found? Mineral resources. Fisheries. (3) Two leading farm crops. What others are important? Rank of this state in tobacco. (4) Two leading manufacturing industries. Make a list of the leading towns and the chief industry of each.

SOUTH CAROLINA

Answer the questions under MAP, *page* 167.

Surface and Products. — Except for the mountains of the northwestern border this state lies entirely within the Piedmont and Coastal plain regions. The **fall line** divides the state into two nearly

Cotton mill at Columbia.

equal portions, the eastern of which is known as the **Low Country**, and the western the **Up Country**. The capital, Columbia, stands at the fall line near the geographical center of the state. The **climate** is mild. Snow is seldom seen except upon the mountains. The **soil** of the Low Country is the usual mixture of sand and clay, but that of the Piedmont is of limestone origin and very fertile. The most important **minerals** are phosphate rock, clay, and building stone. Considerable gold is mined and small amounts of bauxite, tin, silver, and manganese.

The **phosphate** is used in making fertilizer. **Bauxite** is an aluminium ore from which that metal is obtained. **Manganese** is used in the making of steel.

The **fisheries** of this state are unimportant. The **forests** are

chiefly of hard pine and cypress. The swamps along the coast abound in **palmettos,** from which South Carolina has received the name of "Palmetto State."

The palmetto is a species of fan palm. It has enormous leaves, useful for thatching buildings and for making baskets, mats, and hats. The trunk, which attains the height of 50 feet, has a hard and scaly surface. As it is not attacked by the ship worm, it is useful for building docks and wharves.

Agriculture. — The chief crop of this state is **cotton**, in which it ranks fifth. **Corn** is next in importance, followed by vegetables and fruits. Some rice is grown along the coast.

A cottonseed oil mill in South Carolina.

The numerous small islands near the coast of South Carolina and Georgia produce the famous "sea-island" cotton. This has a long and silky fiber and brings three times the price of the ordinary upland cotton. The fiber is valuable for making laces and fine fabrics.

Manufactures and Cities. — The manufactures of South Carolina in common with other Southern states have had a rapid development in recent times. At the close of the Civil War the cotton manufactures of the South were unimportant. But the advantage of nearness to raw materials, cheap transportation and labor has developed the cotton and lumber industries to a high

degree. As a **cotton** manufacturing state South Carolina ranks next to North Carolina. The product in 1880 was valued at about $3,000,000. In 1910 it had increased to $66,000,000. **Other industries** have shown a similar rapid increase. Next to cotton goods are lumber, cottonseed oil products, fertilizers, railroad supplies, and knit goods. **Columbia**, **Greenville**, and **Spartanburg** are the chief manufacturing cities. **Charleston**, the largest city and chief seaport, is noted as a rice market and a point of export for cotton, naval stores, and other products of the South.

QUESTIONS AND TOPICS. — (1) Natural features. Climate. Describe the soil. Mineral resources. (2) Chief farm crops. Sea-island cotton. Describe the palmetto. (3) Growth of manufactures in the South. How have cotton goods increased in value? What other industries are important? Name the chief manufacturing cities. The chief seaport.

GEORGIA

Answer the questions under the MAP, *page* 167.

Natural Features. — Georgia is the largest state east of the Mississippi river. As it is first among the Southern states in manufactures and wealth, it is sometimes called the "Empire State of the South." The larger part of its **surface** lies in the Coast plain, the cities of Augusta, Milledgeville, and Columbus nearly marking its northern boundary. The capital, **Atlanta**, stands on the northern edge of the Piedmont plateau. Several ranges of the Appalachian system cross the northwestern part. The Blue Ridge range ends in Georgia, having several points that exceed 5,000 feet in elevation. The **climate** of Georgia resembles that of the states farther north.

The northern part has a moderate and healthful climate and affords in summer an agreeable change from that of the hot coast lands. The **sea coast** has an extent of 128 miles, but affords few good harbors. The most important **river** is the Savannah on the northern boundary. It is navigable for steamboats to Augusta, a distance of 230 miles.

Resources and Occupations. — The **soil** of Georgia is fertile and well adapted to cotton, in the production of which the state ranks next to Texas. Its **forests** of pine, cypress, and hard woods are the most productive of any state in the South. They yield about 40 per cent of the naval stores produced in the country and vast amounts of

valuable lumber. The chief shipping-point for these products is Savannah. Gold is found in many places, but the total product is small. The state ranks high in the production of iron ore and in marble and granite. Mineral paints are also abundant, and other minerals occur in small quantities.

Besides cotton Georgia is highly productive in corn, wheat, oats, rice, and sugar cane. In the production of sweet potatoes Georgia ranks second, and in peaches and watermelons it is not exceeded by any other state. Other small fruits as well as vegetables are extensively grown. The coast **fisheries** employ about 2,000 persons.

A cotton picking scene.

Manufactures. — Georgia is rapidly becoming a leading manufacturing state. This is due to the abundant water power and raw materials and the facilities for transportation. Cotton goods and cottonseed oil products are the first in importance. Next to these are lumber, naval stores, flour, iron, steel, and machinery. The chief **manufacturing centers** are Atlanta and Augusta.

Cities. — The metropolis and chief manufacturing and railway center is **Atlanta**, the capital. Atlanta is a modern, well-built city. It owes its rapid growth largely to its location at the intersection

of important lines of travel. An important pass over the mountains connects it with the north. On this account it is sometimes called the "Gate City." The main lines of the Southern, the Seaboard Air Line, and the Louisville & Nashville railways meet at Atlanta. Its leading manufactures are cotton goods, iron, steel, and machinery, farm tools, and hardware. **Savannah**, the chief seaport and the second city, has a healthful situation on a bluff overlooking the river. This city is noted as a place of residence. Its broad, well-kept streets and parks are planted with trees and flowers. **Augusta** is a noted cotton center. **Macon** and **Columbus** are other important commercial and manufacturing cities.

A view of the business section of Atlanta.

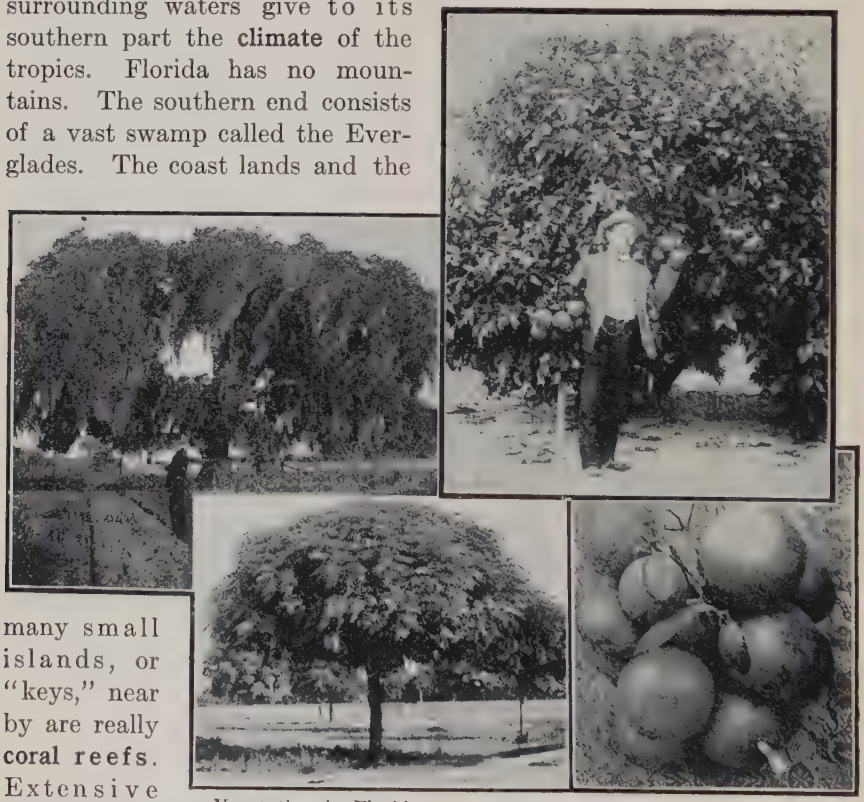
Georgia History. — The colony of Georgia was established by James Oglethorpe, an English soldier. It was intended as a refuge for the thousands of poor debtors who then filled the English jails. Oglethorpe purposed to pay the debts of as many as possible and send them to America. Many friends were found for his project, and in 1732 Oglethorpe set out with 130 persons and established the settlement at Savannah in the following year. Colonists from many parts of Europe flocked to the settlement, which soon became prosperous. Another object in founding a settlement in the South was to protect the other colonies from attacks by the Spanish in Florida.

QUESTIONS AND TOPICS. — (1) Rank of this state. Describe its natural regions. What is said of its mountains? Climate. Coast. Rivers. (2) Forests. Forest products. Name the chief minerals. What is said of farm products? Fisheries? (3) Advantages for manufacturing. What are the chief manufactured products? Describe the situation of Atlanta. Name other leading cities and tell for what each is noted. Georgia history.

FLORIDA

Answer the questions under the MAP, *page* 167.

Surface and Climate. — Florida lies near the edge of the torrid zone, and the **low surface**, dotted with beautiful lakes, and the warm surrounding waters give to its southern part the **climate** of the tropics. Florida has no mountains. The southern end consists of a vast swamp called the Everglades. The coast lands and the many small islands, or "keys," near by are really **coral reefs**. Extensive **phosphate beds** are found along the coast and **sponges** are gathered among the islands.



Vegetation in Florida. 1. A live oak tree. 2. An umbrella tree. 3 and 4. A grape-fruit tree and cluster of fruit.

Products. — The state has a length of 450 miles from north to south; hence, it has a variety of climate with a corresponding variety of products. Cattle and hogs, corn, potatoes, and some cotton and

rice are grown in the northern part. The central part produces oranges, lemons, sweet potatoes, grape-fruit, and sugar cane. Cocoanuts, pineapples, guavas, and bananas are obtained from the southern part and from the islands.

Florida is a favorite **winter resort** for northern people. Jacksonville, St. Augustine, Ormond Beach, Palm Beach, and many other towns are equipped with large hotels to accommodate the winter visitors. While people in New York and Philadelphia are suffering from the cold, the flowers are in bloom and the birds are singing in Florida.

Cities, Manufactures, and Exports. — Florida's characteristic exports are oranges, lemons, grape-fruit, and vegetables. **Jacksonville**, the chief city and seaport, ships all these products by rail and steamer to the North. **Pensacola** and Jacksonville export lumber and naval stores, as Florida has a share of the forest belt. **Fernandina** ships lumber. **Tampa** and **Key West** are famous for the manufacture and export of cigars made from Havana tobacco. The tobacco is brought from Cuba in the leaf and is made into cigars by Cuban workmen. These cigars can be sold at a lower price than those made in Havana, because they escape the duty which the United States government levies on imported manufactured tobacco.

An old church at Tampa, Florida.

St. Augustine, on the eastern coast, was founded by the Spanish in 1565 and is therefore the oldest settlement in the United States. It is noted for its old buildings of Spanish origin. **Tallahassee** is the capital.

The Stetson University at De Land is one of the leading educational institutions. The capital has also a college for women and an industrial institute for colored people.

QUESTIONS AND TOPICS. — (1) Location of Florida. Describe the surface. What is said of the southern part? Describe the climate. What is found along the coast? Soil. Rivers. (2) Characteristic products. What farm crops are grown? What places are noted as winter resorts? (3) Describe the manufactures and trade of Florida. Make a list of the leading cities and state some fact about each.

ANNUAL VALUE OF THE CHIEF PRODUCTS OF THE SOUTH ATLANTIC STATES

Delaware

Products	Value	Products	Value
Manufactures	$41,160,000	Dairy Products	$1,994,000
Live Stock	4,111,000	Wheat	1,718,000
Corn	3,596,000	Hay	1,635,000

Maryland

Manufactures	$243,376,000	Coal	$5,117,000
Live Stock	20,856,000	Fisheries	3,306,000
Corn	14,387,000	Lumber	2,529,000
Wheat	12,282,000	Potatoes	1,848,000
Dairy Products	5,229,000	Tobacco	1,473,000
Hay	5,127,000	Building Stone	1,441,000

Virginia

Manufactures	$148,857,000	Hay	$8,060,000
Farm Animals	42,026,000	Fisheries	4,716,000
Corn	35,023,000	Coal	3,869,000
Lumber	17,627,000	Potatoes	3,864,000
Dairy Products	14,210,000	Oats	2,052,000
Tobacco	10,211,000	—	—
Wheat	10,175,000	—	—

West Virginia

Manufactures	$99,041,000	Hay	$11,225,000
Coal	40,009,000	Wheat	5,435,000
Farm Animals	30,571,000	Apples	4,440,000
Corn	20,448,000	Potatoes	2,599,000
Lumber	19,349,000	Tobacco	1,663,000
Petroleum	16,912,000	Oats	1,164,000
Natural Gas	14,837,000	Wool	1,103,000
Dairy Products	14,723,000	—	—

North Carolina

Manufactures	$142,521,000	Wheat	$6,887,000
Cotton	48,856,000	Apples	4,663,000
Corn	41,383,000	Hay	3,485,000
Farm Animals	30,106,000	Oats	2,139,000
Lumber	15,598,000	Fisheries	1,776,000
Dairy Products	15,424,000	Potatoes	1,498,000
Tobacco	13,680,000	—	—

South Carolina

Manufactures	$79,376,000	Lumber	$7,786,000
Cotton	61,965,000	Wheat	5,563,000
Corn	33,336,000	Oats	3,190,000
Farm Animals	20,200,000	Tobacco	2,336,000
Dairy Products	7,164,000	Hay	1,256,000

Georgia

Manufactures	$151,040,000	Lumber	$11,170,000
Cotton	148,036,000	Oats	4,722,000
Corn	52,598,000	Wheat	3,552,000
Farm Animals	35,200,000	Apples	2,113,000
Dairy Products	14,082,000	Hay	1,849,000

Florida

Manufactures	$50,298,000	Cotton	$5,751,000
Farm Animals	11,166,000	Fisheries	3,388,000
Lumber	10,482,000	Dairy Products	1,552,000
Phosphate Rock	8,485,000	Tobacco	1,086,000
Corn	6,955,000	—	—

CHAPTER X

THE SOUTH CENTRAL STATES

Answer the questions under the MAP, *page* 194.

Natural Features. — The eight states belonging to this group lie mainly in the valley of the Mississippi river and in the Gulf plain. Kentucky, Tennessee, and Alabama extend into the Appalachian highlands, and the western part of Texas and Oklahoma lie in the region of the Great Plains. The greater **elevation** of the Appalachian region gives it a lower **temperature**, while the arid climate of the portion belonging to the Great Plains results in extremes of temperature — hot summers and cold winters.

The presence of **moisture** in the soil and the vegetation that accompanies it prevent a too rapid loss of heat by radiation. The heat absorbed by the earth in dry regions during the day is quickly lost after sunset. During the winter, with its long nights and short days, the earth radiates more heat than it receives. Hence, dry regions have cool nights and severe winters.

All the **rivers** of this group discharge into the Mississippi system or into the gulf of Mexico. Many of them are navigable and have deposited flood plains of great fertility. Parts of these plains known as "bottom lands" are below the present level of the rivers. These

States	Area, Sq. Miles	Population Census of 1920	Capital	Chief City	Population 1920
Kentucky	40,598	2,416,630	Frankfort	Louisville	234,891
Tennessee	42,002	2,337,885	Nashville	Memphis	162,351
Alabama	51,998	2,348,174	Montgomery	Mobile	60,777
Mississippi	46,865	1,790,618	Jackson	Vicksburg	18,072
Louisiana	48,506	1,798,509	Baton Rouge	New Orleans	387,219
Arkansas	53,335	1,752,204	Little Rock	Little Rock	65,142
Oklahoma	70,057	2,028,283	Guthrie	Oklahoma City	91,298
Texas	265,896	4,663,228	Austin	San Antonio	161,379

bottom lands and the Gulf plain have a hot and moist climate, which favors the growth of cotton, corn, sugar, and rice, the leading products.

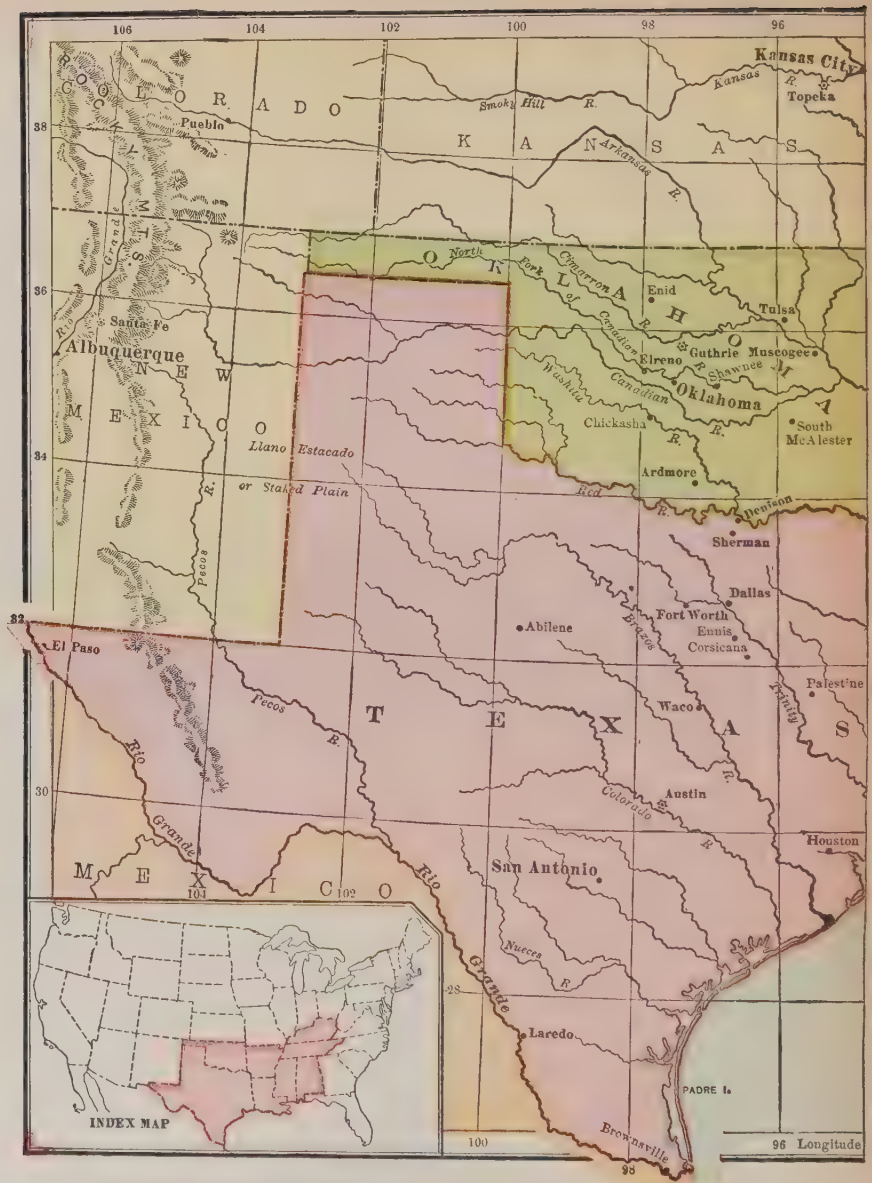
Industries. — The leading industries of this group of states are farming, lumbering, grazing, manufacturing, and mining. Cotton and corn flourish on the bottom lands and uplands, and rice and sugar cane along the coasts. The **forest belt** of hard pine extends through the central and southern parts of Alabama, Mississippi, and Louisiana nearly to central Texas. Farther north is the most valuable forest area of oak, hickory, cottonwood, and cypress in the United States. The **grazing regions** are in western Texas and Oklahoma. Coal and iron are

Curing tobacco in the field in Texas. The plants are strung on laths and allowed to wilt in the sun. They are afterwards hung up in open barns to be more thoroughly cured.

the leading **minerals** and are mined in the Appalachian regions of Kentucky, Tennessee, and Alabama, where extensive manufactures have grown up. **Building stone** of several varieties is also found in these states, and lead and zinc occur in the Ozark highlands of Arkansas.

Manufactures, Cities, and Trade. — The chief manufactures of these states are iron and steel, lumber products, cotton goods, cottonseed oil and cake, refined sugar, and cleaned rice. The leading manufacturing **cities** are located in or near the productive regions. The commercial cities are along the navigable rivers or on the gulf of Mexico. Cotton, lumber, cattle, and naval stores are the leading **exports** and are many times greater in value than the total amount of imports.

QUESTIONS AND TOPICS. — (1) How many states in this group? In what natural regions do they lie? How does the temperature vary? Effect of dry climate. What is said of the rivers? (2) Chief industries of this group. Describe the forests. Grazing regions. What minerals are found? (3) Name the leading manufactures. What is said of the location of cities? Commerce.



MAP STUDIES FOR THE GROUP. — **(1)** How many states in this group? In what latitude are they? (2) Which is the largest? Name two nearly alike in size. Which are about the size of New York? (3) In what three sections of this group do you find mountains? Which states have no mountains? (4) Name the four states east of the Mississippi. Name the four west of it. (5) What rivers are boundaries of this group? Name two other large rivers. (6) Describe the coastline. What harbors do you find? Name three seaports (7) What cities on the Mississippi river? (8) On an outline map write the names of states, lakes, rivers and cities.

MAP STUDIES FOR EACH STATE. — (1) What water boundaries has this state? (2) What states or countries border it? (3) What mountains, rivers, or lakes does it contain? (4) What canals or railroads cross it? (5) What is the latitude of its largest city? (6) What is the time at this city when it is 12 o'clock noon at New York? (7) How does this state compare with your state in size and population? (8) Through what seaport is the commerce of this state carried on? (9) Name the routes by which goods are sent to this port. (10) On an outline map of this group of states insert the names of the capital, the chief cities, and the boundaries of this state.

KENTUCKY

Answer the questions under the MAP, *page* 195.

Natural Features. — The **surface** of this state comprises three physical regions. The northeastern section, lying in the valleys of the Kentucky and Licking rivers, is a part of the Cumberland plateau and is about 1,000 feet above sea level. It is known as the **Blue Grass** country and produces fine breeds of horses and cattle. This plateau rises in the southeast 500 feet higher and is bordered by the Cumberland mountains, whose summits reach the elevation of 3,000 feet. This part of the state has heavy forests and rich deposits of coal and iron. Central Kentucky is a continuation of the eastern plateau region and slopes toward the valleys of the Cumberland and the Tennessee rivers. The underlying rocks are limestone, overlying coarse sandstone and clay. The limestone is very soluble, and the surface waters trickling through it have dissolved out many underground passages and caves. The western part of the state belongs to the Mississippi valley.

Cutting hemp in Kentucky.

Mammoth Cave, near Green river, is the largest in the world. It has 110 miles of passages and numerous large lakes and streams. It contains lofty chambers with glittering limestone icicles, or **stalactites**, hanging from the ceilings. The water containing dissolved lime has trickled through the roof and, evaporating, has left the solid limestone in the form of these hanging cones. A corresponding cone, called a **stalagmite**, is sometimes built up from the floor. Often the stalactites and stalagmites join, forming massive pillars, which support the roof.

Industries and Products. — Kentucky is famous as an **agricultural** state, about four fifths of its area being farm land. The tobacco crop is most valuable and is double that of North Carolina, the second state in this product. Corn, wheat, and hay are the next largest crops. Nine tenths of our hemp is grown in Kentucky. In farm animals it is also a leading state. The western counties raise

cotton, sorghum, potatoes, and other vegetables and fruits. Apples and peaches are common. Besides the iron and coal of the Cumberland plateau there are many petroleum wells and quarries of sandstone and limestone. Portland cement and clay are abundant.

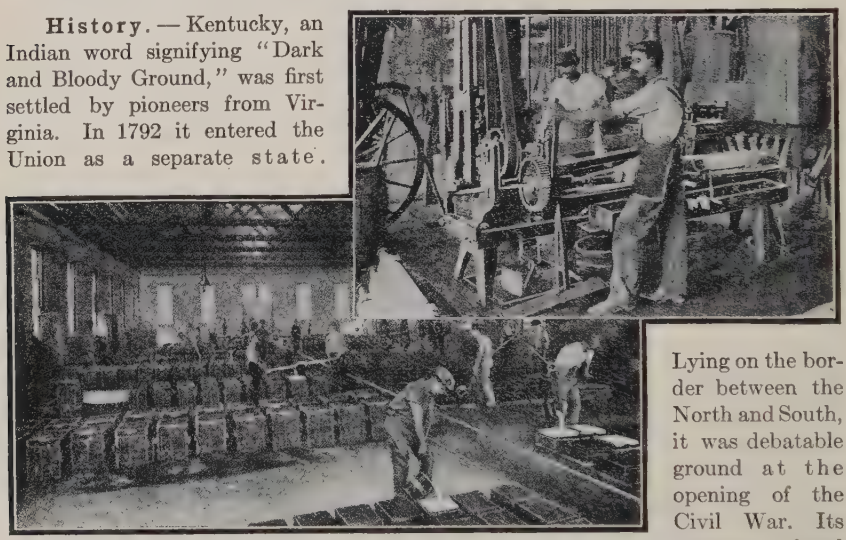
The farming and **mining products** of the state are the basis of its **manufactures**. Much of the grain is ground into flour; still more is used in the manufacture of distilled liquors, for which Kentucky has long been noted. The manufactures of tobacco and lumber are about equal in value, ranking next to mill products. Iron and steel are manufactured to some extent, farm tools and machinery such as plows, harrows, and wagons being of great importance.

Tobacco field and barns.

Cities, Transportation, and Trade. — The metropolis of the state is **Louisville**, built at the falls of the Ohio, around which a canal has been dug. This city manufactures about three fourths of the state's products. Its leading industries are the manufacture of tobacco, distilled liquors, clothing, flour, and meat products. **Lexington**, **Covington**, and **Newport** are other important towns, producing lumber products, flour, and tobacco. Lexington is also the seat of important educational institutions, including the State college. The Ohio, the Mississippi, and the numerous navigable rivers crossing Kentucky afford cheap transportation facilities. The state is

also crossed by several trunk lines of railways which connect the North and South.

History. — Kentucky, an Indian word signifying "Dark and Bloody Ground," was first settled by pioneers from Virginia. In 1792 it entered the Union as a separate state. Lying on the border between the North and South, it was debatable ground at the opening of the Civil War. Its governor refused at first to commit the state to either side, but after the federal victories of Mill Spring and Perryville it was obliged to join the Northern states.



Skein-setting room and foundry in works of the Kentucky Wagon Company at Louisville.

QUESTIONS AND TOPICS. — (1) Three natural divisions of Kentucky. Describe each. Origin of caves. Mammoth Cave. (2) Name the leading farm crops. In which does this state exceed all others? What is said of stock-farming? What products are raised in the west? What are the leading minerals? The leading manufactures? (3) Name the chief cities. What are the industries of each? Advantages for transportation. Kentucky as a border state.

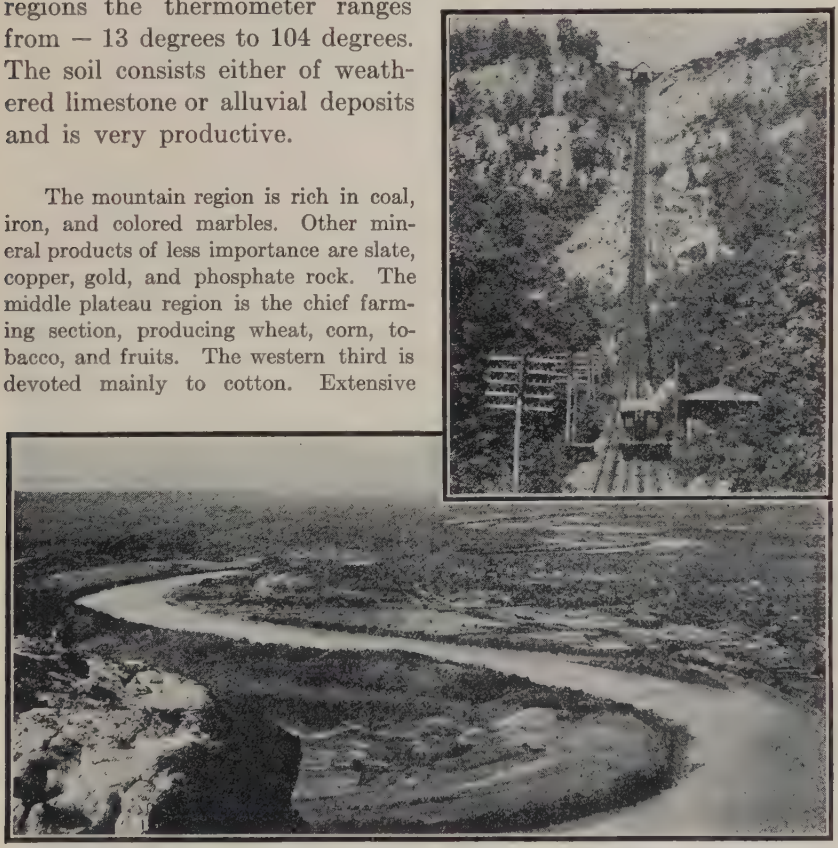
TENNESSEE

Answer the questions under the MAP, *page* 195.

Natural Features. — The eastern third of this state is traversed by a number of parallel **mountain ridges**. The highest of these, forming the eastern border, is the Great Smoky mountains, which include many peaks exceeding 6,000 feet. West of the mountains lies the Cumberland plateau, which slopes gradually, to join the lowlands in

the western part of the state. The lowest point is at Memphis, 182 feet above sea level. The higher parts of the state have a cooler climate and heavier rainfall than the lowlands. In the mountain regions the thermometer ranges from — 13 degrees to 104 degrees. The soil consists either of weathered limestone or alluvial deposits and is very productive.

The mountain region is rich in coal, iron, and colored marbles. Other mineral products of less importance are slate, copper, gold, and phosphate rock. The middle plateau region is the chief farming section, producing wheat, corn, tobacco, and fruits. The western third is devoted mainly to cotton. Extensive



1. The cable road up Lookout mountain. 2. View of the Tennessee river from Lookout mountain.

hardwood forests cover about one half the state's total area. The most important tree is the white oak.

Manufactures and Cities. — In the production of lumber, flour, iron and steel, railroad cars, tobacco, and cottonseed oil, Tennessee ranks high among the South Central states.

Memphis, the chief city, is built on a bluff overlooking the Mississippi. A fine railroad bridge crosses the river here. It is a leading manufacturing and shipping-point for cotton, lumber, flour, and machinery. In hardwood lumber products and cottonseed oil and oil cake Memphis is the first city in the world. Much of the **hardwood** used in the mills is brought across the river from the forests of Arkansas.

Formerly the cotton seeds, after being separated from the fiber, were thrown away as worthless; but now the seeds are steamed and put into a hydraulic press, which presses out the oil. The **oil cake** is then taken out of the press and ground into meal. The meal is used for feeding stock and as a **fertilizer**. The cotton-

Steamboats landing at the levee, Memphis, at time of low water.

seed oil, oil cake, and meal manufactured annually is valued at about $107,000,000. Other articles made from cotton seed are soap, paint, and salad oil. The oil also enters into the composition of oleomargarine and cottolene.

Nashville, the capital and second city, manufactures flour, lumber and cars, tobacco, and fertilizers. Two colleges are located there. In the early days the site of Nashville was a noted hunting ground, the animals seeking the place to lick the salt that had crystallized from the springs in the neighborhood.

Chattanooga is situated in the pass that leads south to Atlanta. Many railroads center there. The leading products are iron and steel, wagons, lumber, and patent medicines.

QUESTIONS AND TOPICS. — (1) Surface. Climate. Products of each section. (2) Manufactures. Cottonseed oil. What is said of Memphis? Of Nashville? Of Chattanooga?

ALABAMA

Answer the questions under MAP, *page* 195.

Natural Features. — The northern part of Alabama lies in the Appalachian highland region. The **mountains** consist of numerous parallel ridges which extend nearly to the central part. They have an average elevation of over 1,000 feet. The rest of the state consists of **lowlands** belonging to the Gulf plain. With the exception of the valley of the Tennessee river the state slopes gently southward, directing the drainage into the gulf of Mexico.

Yards and shed at Mobile where cotton bales are stored awaiting shipment.

Several **rivers** afford excellent inland navigation. The chief of these are the Tombigbee, the Alabama, and the Chattahoochee on the eastern border. The **climate** is moderate and healthful, the temperature rarely exceeding 95 degrees. The rainfall is heavy in the south and decreases slightly in the north. The short coast line affords but one good harbor, which is at the mouth of the Mobile river.

Products. — Alabama is the fourth state in the production of cotton and produces large **crops** of corn, oats, hay, wheat, and potatoes. The southern third of the state belongs to the forest belt and produces **lumber** and naval stores. The chief **mineral resources** consist of the coal, iron, and limestone of the Appalachian regions. These deposits are extensively worked, making Alabama the fifth among the states in iron and steel production. The productive soil, mineral wealth,

and transportation facilities have contributed to build up extensive manufacturing industries.

Manufactures and Cities. — The chief manufacturing cities are **Birmingham** and **Montgomery**. The former is near the center of the mineral regions, and with the neighboring towns is almost exclusively given to the iron and steel industries. The vicinity is thickly planted with coke ovens, furnaces, and rolling mills which produce iron and steel wares, engines, boilers, and machinery.

This city resembles Pittsburg in its natural advantages and industries. Its products are about one fifth those of the northern city. **Montgomery**, the capital, is second to Birmingham as a railroad and manufacturing center. It manufactures cotton products, lumber, and fertilizers. West of Montgomery is **Selma**, noted as a shipping-point for cotton. **Anniston** and **Huntsville**, in the northern part, manufacture cotton goods. The chief seaport is **Mobile**. Its exports are cotton, live stock, and cereals. Several lines of coasting steamers land at this port, bringing bananas and other tropical fruits from Central America and the West Indies.

QUESTIONS AND TOPICS. — Natural divisions of Alabama. Chief resources of each division. Name the principal rivers. Climate. Coast line. (2) Farm products. Forest products. Describe the mineral resources. (3) Advantages for manufacturing. Name the two leading centers and their chief products. Name and locate the other chief manufacturing towns.

MISSISSIPPI

Answer the questions under the MAP, *page* 195.

Natural Features. — Mississippi has a gently rolling **surface**, divided into two slopes by a range of hills running north and south through its central part. The western slope is drained into the Mississippi river, the eastern into the gulf of Mexico. The highest elevation is less than 600 feet. About one seventh of the state is included in the Mississippi-Yazoo **delta**, which extends from the bluffs above Vicksburg to the northern boundary. This land is protected from overflow by levees. It is the best cotton land in the South, the fiber ranking in value next to that of sea-island cotton. South of the Yazoo delta numerous **bluffs** border the Mississippi, on two of which stand Vicksburg and Natchez, the leading cities. The **climate** of Mississippi is generally mild and moist. In the north, however, the thermometer occasionally drops to zero during the

winter. Snow occasionally falls as far south as Natchez. The state has only 85 miles of **coast**, bordering Mississippi sound, the waters of which are too shallow to admit sea-going vessels.

Resources and Industries. — The wealth of Mississippi consists in its fertile **soil** and its extensive **forests.** In cotton it ranks next to Texas and Georgia, while its lumber products exceed in value those of any other Southern state. Corn is the only other farm crop of great importance. The logging camps employ about 30,000 persons. Large amounts of timber, lumber, and naval stores are exported. Valuable oyster and shrimp **fisheries** are found along the coast.

Plowing a cotton field in Mississippi.

Manufactures and Cities. — The manufactures of Mississippi are of recent growth. They consist of lumber products, cottonseed products, cotton goods, naval stores, and canned shrimps and oysters. The chief **cities**, **Vicksburg** and **Natchez**, both on the Mississippi river, are leading cotton markets, and manufacture lumber and cottonseed oil products. Cotton **cloth** and **yarn** are manufactured at **Columbus**, **Greenville**, **Greenwood**, and **Laurel**. **Biloxi** ranks next to Baltimore as an oyster market. **Jackson**, the capital, and **Meridian**, the second city in size, are railway and manufacturing centers. **Gulfport** has an artificial harbor and exports naval stores and lumber.

Forests. — Mississippi has **forests** of yellow pine, cypress, and oak. The manufacture of **lumber** and of **naval stores** is, next to the

cotton industries, the most important. What have you learned about the **fisheries?**

Steamboat landing at Natchez, Mississippi.

During recent years many cotton manufacturers have moved their machinery from New England to the Southern states and have built factories there. Coal and laborers are abundant and the expense of shipping the cotton North is saved.

QUESTIONS AND TOPICS. — (1) Describe the surface of Mississippi. Slopes and drainage. What is said of the Yazoo delta? Describe the climate. The sea coast. (2) Natural wealth of the state. Two leading crops. Forest products. Fisheries. (3) Leading manufacturing industries. Name the chief cities and make a statement about each.

LOUISIANA

Answer the questions under the MAP, *page* 195.

Surface, Soil, and Climate. — The southern half of Louisiana is flat and swampy. The greater part is *lower* than the rivers that flow through it and is protected from overflow by **levees.** This low part of the state is traversed by many **bayous** (*by'-ooz*) which help to drain the land and are useful for navigation. Much of the state is still covered with cane-brakes and swampy **forests** of cypress, live oak,

and cottonwood. **Lumber** is, next to sugar, the largest manufactured product. In the southwest are rich petroleum fields; other **mineral products** are salt, sulphur, and valuable clays. The **soil** is a rich black deposit which has been brought down by the streams at high water. More than one fifth of the land of the state has been formed this way. The moist **climate** is hot and is well adapted to sugar cane, rice, and cotton, which are the leading agricultural products.

A typical Negro cottage in the Louisiana cotton fields.

Sugar. — What have you learned about the cultivation of the sugar cane? Most of the raw sugar from the plantations is sent to

A field of sugar cane showing mill and homes of laborers near East Baton Rouge, Louisiana.

the refineries at New Orleans. The making of refined sugar and molasses is the chief industry in this city. These two products are worth as much as all the other manufactures of the city put together.

Cotton, corn, rice, and sugar cane are the leading **farm crops**. The cotton and corn lands are mainly in the upland in the northern and western parts of the state. The rice and cane lands are in the low flood plain of the Mississippi delta. Nearly four fifths of our **cane sugar** and more than one half of our **rice** come from Louisiana.

Other Industries. — Next in value to sugar and rice are cotton and lumber. A great deal of **cottonseed oil** and **meal** is made in various parts of the state. An important manufacture of New Orleans is coarse cloth, used for covering cotton bales and to make bags for sugar and rice. This cloth is made from jute, a fiber plant brought from Mexico, India, and other countries. The cleaning and polishing of **rice** is next to sugar-refining as a manufacturing industry.

Cities. — **New Orleans** is the **largest city** in the South Central states and also the chief manufacturing and commercial city. It ranks next to Galveston in the export of cotton. It is reached by ocean steamers by way of the Mississippi river, which is kept open at the mouth by jetties, or walls, built along the river to narrow and deepen the channel.

The entire city is surrounded by levees. No cellars can be dug, as they would become filled with water. New Orleans is a busy, progressive city and has fine streets and buildings. Water is obtained from the Mississippi, but for the most part the people use rainwater. The **levees** along the river are used for wharves and docks. As the river and the levees are higher than the rest of the city, the people in New Orleans speak of going up to the river, instead of down to the river. Along the levees, the steamships, steamboats, and sailing vessels form a continuous

line over five miles long, and thousands of men are busy loading cotton, sugar, and rice and unloading and reshipping goods brought from foreign countries.

New Orleans History. — The Great Lakes and the Mississippi were first discovered by the French, who laid claim to the entire basin. Numerous forts were built through the region, and a settlement was made at New Orleans in 1718. In 1803 Louisiana and all the part of the valley of the Mississippi west of the river was purchased by the United States. For a time (1763–1800) Louisiana was held by Spain, and nearly one sixth of the present population, known as **Creoles**, are of

Views in New Orleans. The Archbishop's palace, the statue of Andrew Jackson, and the Cathedral.

either Spanish or French descent. Many of them speak the French language. New Orleans, in 1815, was the scene of General Jackson's brilliant victory over the British; in 1862 it was taken by Admiral Farragut.

Shreveport is a cotton market and trading city. The capital city, **Baton Rouge**, is built on a high bluff overlooking the Mississippi river.

QUESTIONS AND TOPICS. — (1) Describe the surface of Louisiana. What is the highest point in the state? Of what value are bayous? (2) Natural resources. What are the chief products? (3) Manufacturing industries. What are levees? Tell something of the history of New Orleans. Name other leading cities.

TEXAS

Answer the questions under the MAP, *page* 195.

Natural Divisions and Climate. — Texas, the largest of the states, has an **area** greater than five times that of New York State. Its eastern extremity lies in the basin of the Mississippi and in the Gulf plain, while the extreme western part belongs to the Rocky mountain region. The **coast belt** extends about 400 miles along the Gulf and 60 miles inland. It is bordered by a chain of low islands

View of a street and the State capitol at Austin, Texas.

enclosing shallow sounds and affords few good harbors. The coast plain is generally barren, but much of it, especially in the river bottoms, when cultivated yields sugar cane, rice, fruits, and vegetables. Bordering the Coast plain, and extending north and west, is a fertile section of **prairie land**, which is very productive of cotton, corn, and other farm crops. West of the prairie section, and embracing nearly the entire western half of the state, is the region of the **Great Plains**. This section has a rough and broken surface, a dry climate, and scanty vegetation. The northwestern part of it, called the **Staked Plain**, is a dry plateau with an elevation in the west approaching 4,500 feet. The western half of Texas is famous as a grazing region and produces more cattle, horses, and mules than any other state.

The **fourth surface division** of Texas, lying between the Pecos and Rio Grande rivers, belongs to the Rockies. It is crossed by numerous ranges, culminating in peaks from 7,000 to 8,000 feet high. The soil and climate of the entire state are favorable to agriculture where enough moisture can be obtained. The arid sections of the west are very productive when irrigated. The temperature is moderate, although extremes of climate sometimes occur in the west. The rainfall varies from 50 inches in the valley of the Sabine river to nine inches at El Paso.

Resources and Industries. — The fertile soil and favoring climate of Texas, combined with its vast area, have made it the chief

Gathering peaches in a Texas orchard.

agricultural state of the South. It produces about one fourth of the entire cotton crop of the country. The cotton plant flourishes throughout the prairie section from the Red river to the Colorado.

The **cotton** crop in Texas has been greatly damaged in recent years by an insect called the boll weevil, which appeared in 1888. The destruction caused by this insect is increased by moist climatic conditions. Various methods have been tried for exterminating the pest, the most successful of which has been to introduce other insects to prey upon it. The weevil has recently made its way into Louisiana and Mississippi, while its ravages in Texas have diminished.

The value of the **farm animals** of Texas is considerably greater

than the annual value of the cotton crop. It is the leading state in the export of beef cattle, and dairying is an industry of increasing value. The second farm crop is **corn,** which is about half the value of the cotton crop. In the yield of **rice** it ranks next to Louisiana. Texas has more land adapted to rice culture than any other state. The grain can be raised in the river bottoms throughout the prairie district wherever water can be secured for flooding the fields. Other cereals and forage crops are grown, and the **sugar cane** is widely cultivated in the river valleys in the eastern part.

The acreage devoted to farming has vastly increased in Texas during the last few years on account of the development of the arid lands through irrigation. Water

View of a part of Galveston, showing the city park.

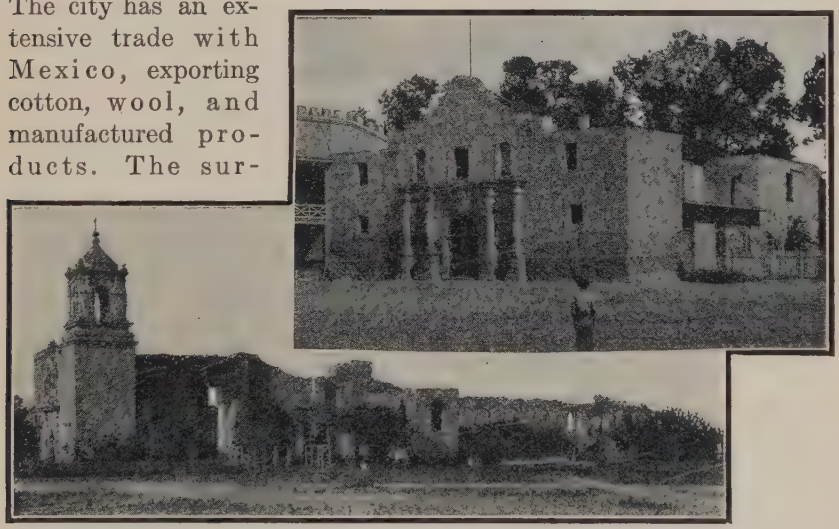
is secured both by damming the streams and from artesian wells. New towns have sprung up rapidly, and the population of irrigated sections has multiplied. Besides the usual farm crops, orchard fruits, dates, figs, oranges, and nuts are profitably cultivated.

The chief **mineral products** of Texas are petroleum and coal. In the first it is the leading state. The wells are found chiefly in the southeastern part, in the neighborhood of Houston, and in the northern part in the Red river valley. Coal is mined in numerous counties in the eastern part. Clays, building stone, and cement are of importance.

Texas has extensive forests which cover nearly one fourth its area. The most valuable are in the eastern part near Trinity river.

Both hard and soft pine are abundant, besides numerous varieties of hard woods. The **fisheries** near the coast are of considerable value.

Manufactures and Cities. — The value of the **manufacturing industries** has increased ten fold since 1880. The chief products are flour, cottonseed products, lumber, and packed meats. Railway supplies, leather, textiles, and machinery are also of importance. **San Antonio**, the largest city of the state, is located near the grazing regions and is the leading market for live stock, hides, and wool. The city has an extensive trade with Mexico, exporting cotton, wool, and manufactured products. The surrounding country is irrigated by water obtained from artesian wells.



Ruins of the Alamo and the San José Mission in San Antonio.

San Antonio is a very old city, a fort having been built there by the Spaniards in 1689. It contains many interesting old buildings, among which is the Alamo, a mission church, sometimes called the "Cradle of Texas Liberty." Here in 1836 a garrison of 180 men under the lead of Davy Crockett and James Bowie held out against a numerous army of Mexicans commanded by General Santa Anna. For eleven days the fight went on, and the heroic defenders were killed to the last man. Eight battles for Texas independence were fought near the city.

Galveston is the leading seaport of Texas and surpasses New Orleans in the amount of cotton exported. The city is built upon a low island protected from overflow by a sea wall. On account of the

destructive flood some years ago, the general level of the city has been raised and the island has been connected with the mainland by a strongly built causeway.

Houston, the second city, is an important commercial city and shipping-point. It is connected by canal with Galveston bay and is the terminus of several railroads. Cotton, lumber, rice, and petroleum are exported. Among its manufactures are sugar, cotton goods, car wheels, and vehicles.

Houston was settled in 1836 and named in honor of General Sam Houston, the first president of the Texan republic. It was also the capital. Near by is the battle field of **San Jacinto**, where Texan independence was won.

Dallas, the third city, in the midst of the farming section, is an important shipping and manufacturing center. It leads all cities of the South in the manufacture of harness and saddlery. Owing to its advantages for railroad transportation, its increasing trade and manufactures, the population has more than doubled since 1900. West of Dallas is **Fort Worth**, also a railway center. Its car shops and slaughter-houses are the chief industrial plants. **Waco**, in the cotton belt, manufactures textile goods. **Beaumont**, **Corsicana**, and numerous other towns owe their growth to the oil interests.

QUESTIONS AND TOPICS. — (1) Describe the four natural divisions of Texas. For what products is each noted? For what industries? Locate a city in each natural division. (2) Advantages for agriculture. What is said of the cotton industry? Why does Texas rank high in farm animals? Results of irrigation. Chief mineral products. Describe the forests. (3) Describe the location and industries of San Antonio. History. Make a list of the other important cities of Texas and explain the industries of each.

ARKANSAS

Answer the questions under the MAP, *page* 195.

Natural Features. — A line drawn across this state from northeast to southwest, and passing through the capital city, would divide it into highlands and lowlands. The **highlands** are a part of the Ozark highlands and consist of two regions of elevations separated by the Arkansas river. The highest point is Magazine mountain, 3,000 feet above sea level. Much of the **lowland** in the southeast is subject to overflow by the Mississippi and its tributaries. The St.

Francis river and other bayous have been utilized for draining the wet lands.

The general slope of the state is southeast; the chief rivers are the **Arkansas**, the **Ouachita**, and the **White**. The last is noted for its fine mountain scenery. The climate of Arkansas is mild and moist. The mountain districts are especially healthful and furnish resorts for invalids. **Eureka Springs** and **Hot Springs** are much visited on account of the curative properties of the waters.

A hunter on the upper St. Francis river, Arkansas.

Resources and Industries. — As in all the states of this group, **agriculture** is the chief industry. The lowland sections yield large crops of cotton, corn, and rice. In the cooler sections grains and fruits are the most important. The state is particularly noted for its fine apples and peaches. Ostrich farming and the raising of flowers for perfumes are peculiar local industries. The northwestern part of the state is a rich **mineral** region producing coal, lead, iron, and zinc.

A view of Little Rock, showing the Arkansas river in the distance.

Arkansas leads in the production of bauxite, a kind of clay from which aluminium is obtained. Its whetstone and oilstone quarries also are the best in the world. Various forms of rock are quarried for building purposes. Cement, mineral paints, gold, silver, topaz, amethysts, and diamonds also occur.

Many sections of Arkansas are covered with forests of hardwood which are the most valuable in the United States. Much of the timber is sent to other states, but the value of home manufactures exceeds $40,000,000 annually.

Manufactures and Cities. — The capital, **Little Rock**, is the largest city and leads in manufactures. Cotton and lumber are its

20,000 bales of cotton awaiting shipment at Fort Smith, Arkansas.

chief products. **Pine Bluff**, an important shipping-point for cotton, manufactures cars, lumber, and furniture. **Fort Smith** is situated on the western border of the state, at the head of navigation on the Arkansas river. **Helena**, on the Mississippi, is the most important point in the state for shipping cotton.

Many smaller towns are engaged in the manufacture of **lumber**. Among the articles made are railway cars, carriages, wagons, furniture, farming tools, and barrel staves. Flour and cottonseed oil are next in value among the manufactures.

QUESTIONS AND TOPICS. — (1) Location of the highlands and lowlands. Name the chief rivers and give direction of each. What is said of the climate? Health resorts? (2) Name the leading farm products of each section. What minerals are found?

In which of these does Arkansas lead? What is said of forests? (2) Chief manufactures. Name some of the lumber products. Other manufactures. Name the chief cities. Location and advantages of each.

OKLAHOMA

Answer the questions under the MAP, *page* 195.

Natural Features. — Oklahoma was the forty-sixth state to be admitted into the Union. The southern and eastern parts were formerly called **Indian Territory**, but the two sections were united to form the new state. The numerous tribes of **Indians** who formerly occupied reservations are now among the most prosperous of the citizens. White settlers from other parts of the country now form about nine tenths of the population.

Oil derricks and a petroleum lake in Oklahoma.

The eastern half of the state belongs to the valleys of the Arkansas and Red rivers. The **soil** is fertile and very productive of corn and other cereals, cotton, and forage crops. The western half is an elevated plain and is chiefly devoted to stock-raising. The **climate** is mild, and there is sufficient moisture for agriculture except in the extreme west. In the east there are **highlands** belonging to the Ozark group. Here coal, petroleum, and other minerals are found.

Industries and Cities. — Farming and stock-raising are the chief industries. **Manufactures** have developed but little, flour and cottonseed oil being the chief products. The largest city is **Oklahoma**, which has doubled in population since 1900. It is the leading railway center and has manufactures of flour, cottonseed products, and farming machinery. **Guthrie**, the capital, has similar industries. **Muscogee** and **Ardmore** are other large towns important as markets and centers of trade.

Oklahoma has rapidly grown into one of our leading states in population and industries. From 1890 to 1900 its population increased three fold, and it more than doubled from 1900 to 1910. It is now the twenty-third state in point of number, and it ranks high in all farm products. Its supplies of mineral wealth

A busy day in Guthrie, Oklahoma.

have been only slightly developed and are of great value. In energy and business enterprise its people have shown themselves to be of the same high order as in the other great states of the West.

QUESTIONS AND TOPICS. — (1) History. Surface features. Industries of each section. (2) Make a list of the leading cities of Oklahoma and state some fact about each.

ANNUAL VALUE OF THE CHIEF PRODUCTS OF THE SOUTH CENTRAL STATES

Kentucky

Products	Value	Products	Value
Manufactures	$159,254,000	Coal	$10,317,000
Farm Animals	73,739,000	Wheat	8,776,000
Corn	64,153,000	Hay	7,771,000
Tobacco	37,174,000	Potatoes	2,355,000
Dairy Products	28,534,000	Oats	1,968,000
Lumber	14,217,000	Building Stone	1,000,000

Tennessee

Manufactures	$137,960,000	Hay	$8,640,000
Farm Animals	60,819,000	Coal	7,119,000
Corn	55,055,000	Tobacco	4,156,000
Dairy Products	25,690,000	Iron	4,011,000
Cotton	19,869,000	Oats	2,120,000
Lumber	15,567,000	Potatoes	1,598,000
Wheat	9,568,000	Building Stone	1,311,000

Alabama

Manufactures	$109,170,000	Coal	$14,648,000
Cotton	83,045,000	Iron	4,359,000
Corn	37,099,000	Oats	3,118,000
Farm Animals	36,106,000	Hay	2,241,000
Dairy Products	17,000,000	Wheat	1,338,000
Lumber	15,585,000	Potatoes	1,333,000

Mississippi

Cotton	$88,207,000	Lumber	$27,919,000
Manufactures	57,451,000	Dairy Products	14,830,000
Farm Animals	42,657,000	Oats	1,632,000
Corn	33,033,000	Hay	1,403,000

Louisiana

Manufactures	$186,380,000	Rice	$10,013,000
Lumber	38,689,000	Dairy Products	6,228,000
Corn	35,327,000	Petroleum	4,131,000
Cotton	29,903,000	Potatoes	1,092,000
Farm Animals	28,870,000	—	—

Texas

Cotton	$201,943,000	Oats	$7,130,000
Farm Animals	240,577,000	Hay	6,985,000
Manufactures	150,528,000	Petroleum	6,701,000
Corn	92,910,000	Wheat	5,959,000
Dairy Products	43,420,000	Coal	3,420,000
Lumber	18,368,000	Potatoes	3,180,000
Rice	7,717,000	—	—

Arkansas

Cotton	$57,748,000	Coal	$3,500,000
Manufactures	53,864,000	Hay	2,768,000
Farm Animals	37,484,000	Oats	2,206,000
Corn	36,288,000	Potatoes	2,125,000
Lumber	25,068,000	Rice	1,008,000
Dairy Products	19,140,000		

Oklahoma

Corn	$55,632,000	Dairy Products	$8,200,000
Farm Animals	54,830,000	Oats	7,337,000
Cotton	43,563,000	Coal	5,977,000
Petroleum	17,695,000	Hay	5,913,000
Manufactures	16,550,000	Lumber	1,999,000
Wheat	15,837,000	Potatoes	1,796,000

CHAPTER XI

THE NORTH CENTRAL STATES

Answer the questions under the MAP, *page* 220.

Natural Features. — These twelve states lie in the northern half of the Mississippi valley and in the plain of the Great Lakes. They comprise one fourth the **area** and contain one third the **population** of the United States. This section surpasses any other of equal size in the world in agricultural production. It includes six of our first ten manufacturing states and is making rapid progress in all branches of industry.

The **surface** of these states is generally level or rolling. The slopes are gentle and the rivers navigable. The only elevations that can be called mountains are the Ozark mountains in Missouri, the Black Hills in South Dakota, and the low ranges in northern Michigan, Wisconsin, and Minnesota. The five states east of the Mississippi belong to the prairie region and the Lake plain. West of the prairie region the elevation gradually increases until the Great Plains are reached, and about half the surface of the western tier lies in this region.

States	Area, Sq. Miles	Population Census of 1920	Capital	Chief City	Population 1920
Ohio	41,040	5,759,394	Columbus	Cleveland	796,836
Indiana	36,354	2,930,390	Indianapolis	Indianapolis	514,194
Illinois	56,665	6,485,280	Springfield	Chicago	2,701,705
Michigan	57,980	3,668,412	Lansing	Detroit	993,678
Wisconsin	56,066	2,632,067	Madison	Milwaukee	457,147
Minnesota	84,682	2,387,125	St. Paul	Minneapolis	380,498
Iowa	56,147	2,408,021	Des Moines	Des Moines	126,468
Missouri	69,420	3,404,055	Jefferson City	St. Louis	773,000
Nebraska	77,520	1,296,372	Lincoln	Omaha	191,601
Kansas	82,158	1,769,257	Topeka	Kansas City	101,177
North Dakota	70,837	645,680	Bismarck	Fargo	21,961
South Dakota	77,615	636,547	Pierre	Sioux Falls	25,202

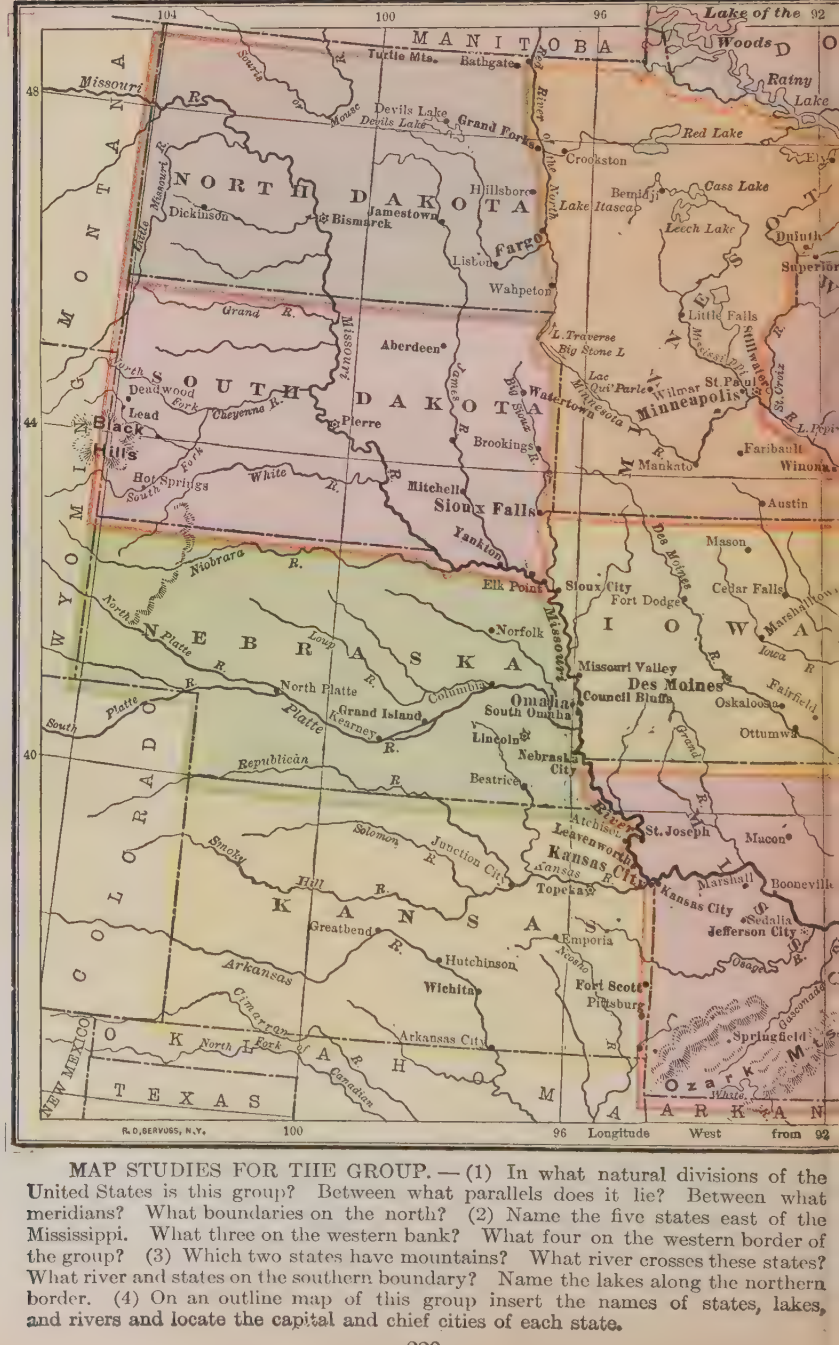
The **soil** of the North Central states is nearly everywhere of great depth and fertility. Much of it was once at the bottom of an inland sea. The northern part was covered with drift from the great Ice Sheet. The **climate** is marked by hot summers and cold winters. East of the 100th meridian there is always sufficient rainfall for the crops. West of this line it averages less than twenty inches annually, and grazing is therefore more profitable than farming.

Transportation. — Perhaps no other region in the world enjoys better facilities for transportation. The Ohio, the Mississippi, and the Missouri rivers with their tributaries form a network of navigable streams. Canals connect the Mississippi system with the Great

Curiously carved rock forms along the Wisconsin river.

Lakes, affording routes of trade to both the gulf of Mexico and the gulf of St. Lawrence. Nearly 100,000 miles of railways extend in every direction, connecting the areas of production, the manufacturing and distributing centers.

Industries and Products. — The growing of wheat and corn, and stock-raising are the chief **farm industries** of these states. They are also the chief source of the nation's supply of dairy products. Their mineral wealth is enormous, consisting mainly of coal, iron, petroleum, copper, and salt. Their forests, though greatly depleted, are still the chief source of the home supply of soft wood lumber. The **manufacturing** industries are mainly such as utilize the raw materials that are near at hand. Packed meats, iron and steel, flour, and lumber are



MAP STUDIES FOR THE GROUP. — (1) In what natural divisions of the United States is this group? Between what parallels does it lie? Between what meridians? What boundaries on the north? (2) Name the five states east of the Mississippi. What three on the western bank? What four on the western border of the group? (3) Which two states have mountains? What river crosses these states? What river and states on the southern boundary? Name the lakes along the northern border. (4) On an outline map of this group insert the names of states, lakes, and rivers and locate the capital and chief cities of each state.

INDEX MAP
NORTH CENTRAL STATES
Scale of Miles
0 50 100 200
Largest City in each State ..... Detroit
Cities next in importance ..... Toledo
Capitals ..... ☆
NEW YORK
50,000 Square Miles
(Nearly)
COMPARATIVE SIZE
MINNESOTA
ONTARIO
CANADA
LAKE SUPERIOR
LAKE MICHIGAN
LAKE HURON
LAKE ERIE
ONTARIO
NEW YORK
PENNSYLVANIA
WISCONSIN
ILLINOIS
INDIANA
OHIO
KENTUCKY
WEST VIRGINIA
MISSOURI
TENNESSEE
Port Arthur
Thunder B.
ISLE ROYALE
Keweenaw Pt.
Calumet
Marquette
Ishpeming
Iron Mountain
Sault Ste. Marie
Mackinac
Green Bay
Marinette
Wausau
Eau Claire
Oshkosh
Sheboygan
La Crosse
Portage
Milwaukee
Madison
Racine
Kenosha
Beloit
Dubuque
Rockford
Evanston
Chicago
Aurora
Joliet
Cedar Rapids
Davenport
Moline
Rock Island
Lasalle
Muscatine
Galesburg
Burlington
Peoria
Keokuk
Bloomington
Quincy
Lincoln
Decatur
Springfield
Alton
East St. Louis
St. Louis
Bellevue
Grand Rapids
Muskegon
Manistee
Traverse B.
Alpena
Bay City
Saginaw
Port Huron
Mt. Clemens
Detroit
Lansing
Kalamazoo
Jackson
Ann Arbor
Monroe
Toledo
Michigan City
Waukegan
South Bend
Fort Wayne
Huntington
Kankakee
Logansport
Terre Haute
Indianapolis
Columbus
Springfield
Dayton
Cincinnati
Zanesville
Marietta
Portsmouth
Ironton
Covington
Louisville
Evansville
Frankfort
Cleveland
Lorain
Sandusky
Akron
Youngstown
Canton
Mansfield
Marion
Wheeling
Pittsburg
Allegheny
Buffalo
Niagara R.
Toronto
L. Ontario
Erie
Ashtabula
Poplar Bluff
Cairo
Paducah
Greenwich
Ohio R.
Mississippi R.
Illinois R.
Wabash R.
Kentucky R.
Tennessee R.
Cumberland R.
Allegheny R.
Monongahela R.
Kanawha R.
Scioto R.
Muskingum R.
Hocking R.
Miami R.
Maumee R.
Sandusky R.
Grand R.
Kalamazoo R.
Saginaw B.
Grand Traverse B.
Green B.
Menominee R.
Chippewa R.
Penokee Iron Range
Mineral Range
Keweenaw B.
Whitefish B.
St. Marys Falls Canal
Mackinac I.
Beaver Is.
Manitou Is.
Georgian Bay
North Channel
Lake St. Clair
Lake Chautauqua
Lake Winnebago
Fond du Lac
Muskegon
Grand R.
Kalamazoo
Michigan City
Adrian
Toledo
Sandusky
Youngstown
Akron
Canton
Mansfield
Marion
Wheeling
Pittsburg
Allegheny
Ashtabula
Erie
Lorain
Cleveland
Bellaire
Zanesville
Columbus
Springfield
Dayton
Cincinnati
Portsmouth
Ironton
Marietta
Covington
Louisville
Evansville
Frankfort
Terre Haute
Indianapolis
Kankakee
Logansport
Huntington
Fort Wayne
South Bend
Michigan City
Waukegan
Kenosha
Racine
Beloit
Madison
Milwaukee
Grand Rapids
Muskegon
Manistee
Traverse B.
Alpena
Bay City
Saginaw
Port Huron
Mt. Clemens
Detroit
Lansing
Kalamazoo
Jackson
Ann Arbor
Monroe
Toledo
Michigan City
Waukegan
Evanston
Elgin
Aurora
Joliet
Chicago
Rockford
Beloit
Dubuque
Cedar Rapids
Davenport
Moline
Rock Island
Lasalle
Muscatine
Galesburg
Burlington
Peoria
Keokuk
Bloomington
Quincy
Lincoln
Decatur
Springfield
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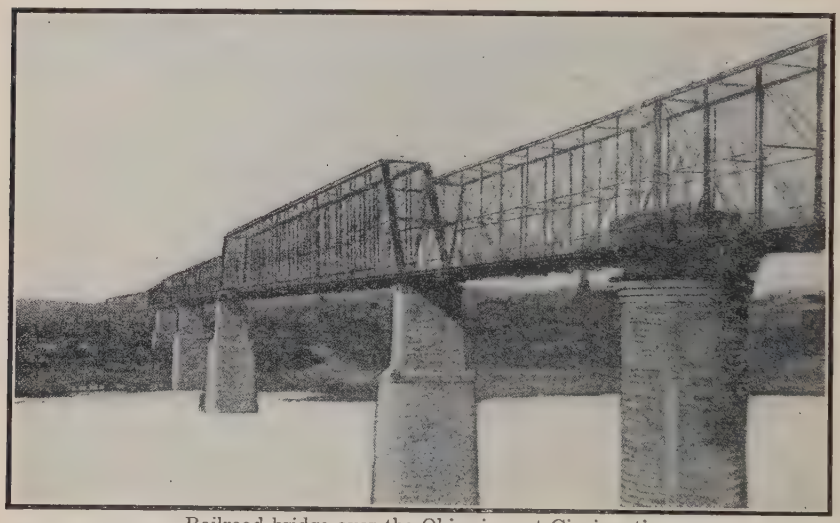
Manitou Is.
Georgian Bay
North Channel
Lake St. Clair
Lake Chautauqua
Lake Winnebago
Fond du Lac
Muskegon
Grand R.
Kalamazoo R.

the most valuable products. Farming implements of every sort are made to supply the home market and for export. The building of railway cars is naturally a great industry. In the large centers of population numerous other industries are carried on to supply both home and foreign trade.



Railroad bridge over the Ohio river at Cincinnati.

Cities and Commerce. — As the products of these states are bulky and expensive to move, the chief factor determining the location of cities has been **convenience of transportation**. The industries that build up cities depend mainly on the convenience of raw materials and the ability to market the product. The chief cities of these states therefore are built on the shores of the Great Lakes or along the navigable streams. These cities are the termini of the railroads and the receiving and distributing centers for the products of the entire section. Chicago, St. Louis, Detroit, Cleveland, Milwaukee, Minneapolis, St. Paul, Cincinnati, and Indianapolis owe their growth to advantages of situation. Many other cities of smaller size are important as railroad centers or have become prominent on account of local industries.

OHIO

Answer the questions under the MAP, *page* 221.

Surface, Soil, and Climate. — The surface of Ohio has an elevation varying from 430 feet in the southwest to 1,400 feet in the central

and western parts. It is a low **plateau** region having a rolling surface and abounding in glacial hills. These extend across the state from northeast to southwest, dividing it into a short northern and a long southern slope. The only stream of considerable size in the north is the Maumee river, flowing into Lake Erie. The three principal streams of the southern slope are the Muskingum, the Scioto, and the Great Miami. The **soil** of Ohio is mainly glacial drift consisting of marl, sand, and clay. In the southern part much of the soil is of

Public square in Cleveland, Ohio.

limestone origin, and some in the southeastern part is the alluvial deposit of streams. Everywhere in Ohio the soil is of great fertility. The **climate** is of the usual continental character, the extremes of **temperature** at Toledo being 21 degrees in January and 102 degrees in July. **Rainfall** is abundant and well distributed, averaging about 40 inches at Cincinnati and 30 inches at Toledo.

Ohio is known as the "Buckeye State" from the buckeye or horse-chestnut tree, which is common in every part. In the southwestern part and through the Ohio valley are numerous mounds, often of peculiar shape, which are the work of an ancient race, now known as the Mound Builders, who once occupied the country.

Ohio was the first state to be settled west of the Appalachian mountains. The first pioneers were from New England, and settlements were made at Marietta and Cleveland.

Industries and Products. — Next to the manufacturing industries, **agriculture** is the chief occupation of the people. The leading products are corn, dairy produce, hay, wheat, oats, and apples. Farm **animals** of all sorts rank high in value. It is the third state in wool and the second in dairy products. Grapes and orchard **fruits** are abundantly grown in the region bordering lake Erie, where the mild climate favors these industries.

The chief **mineral products** of the state are coal, petroleum, natural gas, china clays, and a fine grade of sandstone used for building. The coal is found in the southeast, in the valleys of the Muskingum and Hocking rivers, where there are about twelve hundred mines. The chief oil fields are in the vicinity of Findlay. The crude oil is piped to Cleveland, where it is refined. East Liverpool is the center of the brick and clay industry.

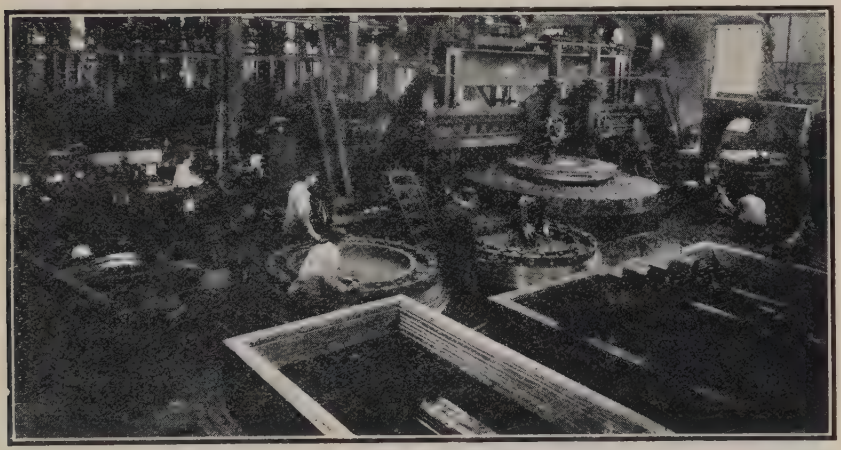
University Hall, Ohio State University, Columbus.

Cities and Manufactures. — The largest city of Ohio is **Cleveland**. It is the chief port on lake Erie and leads in manufactures. The building of steel ships is the largest industry. Iron and steel goods, such as machinery, nails, wire, tools, and hardware, make up nearly half the total manufactures of the city. Automobiles, clothing, and packed meats are the next largest industries.

The iron ore for Cleveland's industries is obtained from the mines in Minnesota and is easily and cheaply transported by way of the lakes. This city is one of the most beautiful in the country; Euclid avenue is famous as a fine residential street.

Cincinnati, the second city, is called the "Queen City of the

West," on account of its high location, and the "Gateway to the South," because of many railroads that connect it with the Southern states. It is also noted for iron and steel products, especially the



Setting up safes in the works of the Herring-Hall-Marvin Company near Cincinnati, Ohio.

safes and vaults used by business men and banks. Clothing, packed meats, and boots and shoes are the next most valuable products. Several steel bridges cross the Ohio at Cincinnati. **Toledo** is noted for its fine harbor and lumber, coal, and grain markets. **Columbus**, the capital, is the chief railroad center. It is the seat of the State

A part of the works of the National Cash Register Company at Dayton, Ohio.

University and of several other institutions of learning. **Dayton** stands at the junction of the Miami river and several of its tributaries. It is a meeting-point for many railroads, affording convenient trans-

portation to every part of the state. Cash registers are the most important manufactures. Others are railroad supplies, furniture, paper, and leather. The Soldiers' Home, near Dayton, forms a community numbering several thousand. **Conneaut**, **Ashtabula**, **Lorain**, **Sandusky**, and other towns along lake Erie are noted for the manufacture of iron and steel.

QUESTIONS AND TOPICS. — (1) Surface of Ohio. Name the principal streams. Describe the soil. Climate. (2) Ancient people of Ohio and their relics. By whom was the state settled? (3) What are two leading industries? Name the chief farm products. Rank of the state in wool and dairy products. Fruit. Location of the chief minerals. (4) Location and industries of Cleveland. Why is it well located for the iron and steel industry? Make a list of the other leading cities, giving the location and manufactures of each.

INDIANA

Answer the questions under the MAP, *page* 221.

Natural Features. — Indiana resembles Ohio in surface, soil, and climate. It lies in the prairie region and has a generally level surface, with a few hills of considerable size in the southern part. The land has a general **slope** toward the southwest, and the drainage is almost entirely carried by the Ohio river and its branches. The **soil** of the southern section is a rich loam. In the rest of the state it consists of fertile deposits of glacial drift.

The average temperature of the state is about 52 degrees and the annual rainfall 42 inches.

Industries and Products. — Indiana is chiefly an agricultural state. Its **cereal products** resemble those of Ohio, although its wheat crop is much larger. It has coal, oil, natural gas, clays, cement, and building stone. Near the southern part are valuable hardwood forests. Much grain is made into distilled **liquor** at Terre Haute, and vehicles and furniture are manufactured from its supplies of hardwood. Its vast supplies of soft coal furnish fuel for its **tile** and **terra-cotta** industries, which are the most extensive in the country. Meat-packing and the manufacture of flour exceed all other industries in the value of the products. Machinery for iron works and flour mills is one of the state's leading exports.

Cities. — The capital and largest city is **Indianapolis**. It is also

the chief railroad center and leads in manufactures. The chief of these are packed meats, flour, wood products, and iron and steel. **Evansville**, the second city, stands on a bluff at one of the great bends of the Ohio river. It is a flour and lumber center. **South Bend**, at the opposite end of the state, has the largest wagon factory in the country. **Fort Wayne** is noted for packed meats and railroad sup-

The Soldiers and Sailors Monument at Indianapolis.

plies. **Muncie** and **Anderson** lead in the production of glass, in which they utilize natural gas as a fuel. The center of population of the United States is in southwestern Indiana.

QUESTIONS AND TOPICS. — (1) Describe the surface, soil, and climate of Indiana. State the average temperature and rainfall. (2) For what industries is the state noted? In which does it lead? Name its chief mineral products. For what industries are they the basis? (3) Location and importance of Indianapolis. Its chief manufactures. What is said of machinery? Make a list of the other leading cities and give an important fact about each.

ILLINOIS

Answer the questions under the MAP, *page* 221.

Surface, Soil, and Climate. — This state has a level, almost treeless surface, and a deep rich **soil** through nearly its whole extent. With the exception of a small area along lake Michigan, its slope is toward the Mississippi and Ohio rivers. The northern part has a colder **climate** than the southern part and has less **rain**, but everywhere good crops of corn, wheat, and other grains as well as fruits and vegetables of nearly every sort can be grown.

A reaper and binder at work in a wheat field.

Industries. — The great industries of Illinois are **farming**, **stock-raising**, **coal-mining**, and **manufacturing**. It is the first state in corn and is next to Pennsylvania in the amount of coal mined. In the **slaughtering** of cattle, hogs, and sheep and in the **packing** and preparation of meat for market it is far in advance of any other state.

Illinois has also more **coal lands** than any other state. Fully four fifths of its surface is underlaid with beds of *bituminous* coal. This abundant supply of fuel and the nearness of the **forests** in the bordering states has led to the **manufacturing** of many articles out of wood. Wagons, mowers, reapers, and other implements of the farm

are made in large quantities. Boxes and barrels for packing meats and other merchandise, cars for the many railroads, furniture, pianos, and organs are among the products of the factories.

Illinois is next to Pennsylvania in the making of **iron** and **steel**. The mills are chiefly at Chicago. We can see by looking at the map (see *page* 221) how easy it is to bring iron ore by water from Minnesota, and coal by rail from any part of the state, because nearly all the railroads lead to Chicago. What have you learned about the effect of railroads on the growth of this city?

Transportation. — The industries of this state teach us the value of good means of transportation. Illinois has coal to furnish power for factories, but little lumber and iron. The railroads and lake steamers bring the lumber and iron into the state, and hundreds of factories are built in the cities to supply the needs of the people. She has thousands of farmers who need articles which must be made of these materials. The railroads carry the farmer's grain, stock, and other food supplies to the cities and bring back to him the things that he needs.

Cities. — The greatest lake port in the world is **Chicago**. This city also sends more **beef**, **mutton**, and **pork** to market than any other city in the world. The animals that furnish these and many other products are brought to Chicago in cars from all parts of the vast country west of the Mississippi river. The special place prepared for their reception is called **stock yards**. During the year five times as many animals pass through these yards as there are men, women, and children in the whole city.

Surrounding the stock yards are the **slaughtering** and **meat-packing** establishments. The animals go in alive at one end and come out at the other end in the

shape of quarters of beef, barrels of pork, hams, bacons, sausages, lard, and cottolene. The blood goes to make fertilizers, the bones are made into buttons, and the bristles into brushes. Gelatin is obtained from the hoofs; the horns make good combs, the hides and skins are sent to the tanneries to be made into leather, from which we obtain our shoes, gloves, and mittens. You will thus see that every part of the animal has some use and that no part goes to waste. Besides the stock yards, Chicago has many other interesting sights. Its **railway stations**, its splendid parks and public buildings are well worth visiting. The other manufacturing industries of Chicago are enormous. One of the largest is the **Illinois Steel Company** at South Chicago. It employs many thousands of men. Rails and other forms of steel are made. The **Pullman Car Works** manufacture thousands of passenger cars, dining, sleeping, and parlor cars, and freight cars every year. Much farming machinery and furniture is made. In clothing, the city is next to New York. One of the most wonderful features of Chicago is the great **canal**, into which the Chicago river has

Clay beds and brick factory at Danville, Illinois.

been changed by widening and deepening it. The river formerly flowed into the lake, but now it flows into the Illinois river. The canal is not only useful for navigation, but it serves to carry away all the drainage of the city, which at one time ran into lake Michigan and spoiled the water for drinking purposes. This canal connects the Mississippi river and the gulf of Mexico with the Great Lakes, the St. Lawrence river, and the Atlantic ocean.

The grain, lumber, and other products of the North Central states can be sent by water all the way to New Orleans and to Europe, and the products of the Southern states can be sent North by the same route.

Springfield, the capital, and **Peoria** are the next largest cities. Peoria distills more liquor than any other city. Distilled liquors are made from grain; corn, wheat, rye, and barley are used. The grain is first made into *malt*, from which a liquor is obtained which is

distilled into whiskey. Among the other large cities of the state are **Elgin**, noted for watches and creameries; **Moline**, noted for plows

Scene on the Chicago ship canal in the heart of Chicago.

and wagons; **Rock Island**, a manufacturing and railroad center; **Quincy**, famous for lumber, machinery, and flour; and **Evanston**, the seat of the Northwestern University.

QUESTIONS AND TOPICS. — (1) Describe the surface and soil of Illinois. (2) What are its chief industries? (3) Why has it become a great manufacturing state? (4) How can you show the value of its railroads? (5) What has led to the growth of its largest city? (6) What are the stock yards? (7) What buildings surround them? (8) Make a list of as many products of these establishments as you can. Describe the other leading cities.

MICHIGAN

Answer the questions under the MAP, *page* 221.

Surface, Soil, and Climate. — Michigan is variously called the **Lake state** and **Peninsular state** on account of the bordering lakes and the two peninsulas into which they divide it. The name means

"Lord of Waters." Not only are there lakes on the borders, but there are over 4,000 glacial lakes scattered over the surface.

Along the shores of lake Michigan are long ridges of sand hills, or dunes, which have been piled up by the western winds which blow across the lake. The sand sometimes buries whole forests. The rocks along lake Superior are sandstone and have so many bright colors and such peculiar shapes that they are called **Pictured Rocks.** The soil is made of glacial drift and is excellent for all crops that will grow in the climate. Michigan is warmer than other states in the same latitude on account of the large bodies of water that border it.

Products. — The most important **farm crops** are corn, potatoes, oats, and wheat. The hay crop is one of the largest in the country. Rye and barley and sugar beets are also grown. Michigan is also a great **wool-growing** state. A special product of the state is the oil of peppermint, more of which is produced than in any other state or country.

A field of sugar beets ready for the factory, at Blissfield, Michigan.

For many years Michigan has produced more **lumber** than any other state. In the north, pine is the principal wood. Farther south, oak, maple, hickory, cherry, ash, elm, walnut, beech, and basswood are found. **Muskegon** and **Menominee** are leading cities in the manufacture of lumber. Much of it is made into furniture, ships, farming implements, and into materials for building houses. In the manufacture of **furniture** Michigan leads all the states. The leading city engaged in this industry is Grand Rapids.

Minerals. — The copper mines of the Keweenaw peninsula, especially the **Calumet** and **Hecla** mines, yield the richest ore in the world. Masses of pure copper weighing thousands of tons are found. Enormous quantities of iron ore are loaded upon ships at Escanaba

and sent through the lakes to cities in Ohio to be made into iron and steel. Michigan makes more salt than any other state in the Union. The salt-wells are chiefly in the regions around Saginaw bay.

Fisheries. — Whitefish, sturgeon, lake-trout, bass, and pickerel are found in the lakes. These are packed in ice and sent to all parts of the country. The **fish-hatcheries** place millions of small fry in the lakes and streams every year.

A cabinet room in a furniture factory at Grand Rapids. In this room the different pieces of an article are fitted together.

Manufactures. — Besides lumber, iron, and salt, flour, cars, engines, ships, machinery, wagons, and stoves are made in various

Michigan University at Ann Arbor.

cities. Much paper is made from wood-pulp, and leather is tanned in many parts of the state.

Cities and Commerce. — The chief city of the state is Detroit.

It extends along the Detroit river for several miles and has wide streets and beautiful parks. Patent medicines, packed meats, automobiles, lumber, and flour are the leading manufactures. **Kalamazoo** is noted for celery. Over a thousand acres near the city are devoted to its cultivation. **Menominee** has the largest beet-sugar factory in the United States and is also the leading lumber city. **Ann Arbor** is the seat of Michigan University.

Michigan has more than 1,600 miles of coast line and nearly 9,000 miles of railroads. A submarine tunnel passes under the St. Clair river at Port Huron. The "Soo" canal around St. Mary's falls carries more ships than any other canal in the world. The chief **exports** of the state are lumber, copper, iron, salt, wool, fruits, potatoes, and dairy products.

QUESTIONS AND TOPICS. — (1) Names given to this state. Lakes. Sand dunes. Surface of each peninsula. (2) Soil and crops. Forests. Why is the lumber product becoming less? Into what forms is the lumber manufactured? (3) What of the copper mines? Other minerals. Fisheries. (4) Describe the city. Name and locate the other leading cities and tell for what each is noted. (5) What are the exports of the state?

WISCONSIN

Answer the questions under the MAP, *page* 221.

Natural Features and Products. — The climate of this state is much colder than that of Michigan and the rainfall is less. The **soil** is fertile, and like that of Michigan, it is mostly glacial drift. The corn, oats, hay, barley, and potato crops are very large and the state is fourth in the production of tobacco. The wheat crop is small as compared with other states. Stock-raising, dairying, and the growing of fruits, especially cranberries, are also important **industries**. There are large forests and rich iron mines in the northern section, and many thousands of men find employment in the mining and lumbering establishments. Lumber, paper, and wood-pulp, leather, packed meats, and malt liquors are the largest manufactured products of the state.

Cities and Manufactures. — Milwaukee is a fine city, built on high land bordering lake Michigan. Malt liquors, iron and steel, machinery, leather, and flour are the leading manufactures. **Superior** also makes much flour and ships large quantities of grain, iron ore,

and lumber. **Racine** is the third city in size and is noted for the manufacture of threshing-machines and furniture. The state university is located at **Madison**, the capital.

Extensive mills for the manufacture of lumber are located at **Fond du Lac, Eau Claire, La Crosse, Marinette, Oshkosh, Wausau,** and other towns on the lakes and rivers. Paper and pulp mills are located at Eau Claire and Marinette, agricultural implements are made at **Beloit**, and flour barrels at **Green Bay.** Coal and salt are mined at **Sheboygan** and **Kenosha** is engaged in the fishing industry. Most towns on Lake Michigan are shipping points for the productions of the state.

1. The City Hall, Milwaukee. 2. Soldiers' Home at Milwaukee.

QUESTIONS AND TOPICS. — (1) Compare with Michigan as to soil and climate. Leading farm crops. (2) What is said of the forests and iron mines? What are the chief manufactures? Can you explain why leather, wood-pulp, and malt liquors should be among the manufactures? Describe the chief city. What other cities are mentioned in the text?

MINNESOTA

Answer the questions under the MAP, *page* 221.

Natural Features. — The surface of the greater part of Minnesota is a **plateau**, containing many lakes, streams, and forests. It contains the ridge called the *Height of Land* which divides the Great Central plain into a northern and a southern slope. The headwaters of the Mississippi, the Nelson, and the St. Lawrence rivers are all in the northern part. The **soil** is a rich loam and very fertile. The western part of the state is in the valley of the Red river of the North.

View on the Mississippi river below St. Paul.

This region was once the bottom of an ancient lake and is the best wheat land in the United States.

The **climate** of Minnesota is intensely cold in winter and hot in summer. The rain comes during the spring and early summer; it is not heavy, but is enough for the growing wheat crop.

Industries. — In the Red river valley the **farms** are very large, often containing many thousands of acres. Such farms are divided into sections, each of which has its own equipment.

A great part of the wheat grown in Minnesota and in the neighboring states is made into flour at Minneapolis, the "Flour City." The mills of the Washburn-Crosby-Company turn out about 50,000 barrels per day while those of the Pillsbury-

Washburn company of Minneapolis can make 45,000 barrels of flour in a single day. To carry grain to these mills and to take away the flour and bran would keep 400 freight cars busy all the time.

The greater part of the wheat grown in Minnesota that is not made into flour is sent to the city of **Duluth** at the head of lake Superior. From here it goes through the Great Lakes to Buffalo and down the St. Lawrence river, to be loaded into steamships going to Europe. Much of it is transferred to canal boats at Buffalo and towed to New York, where it is reshipped to European and other foreign ports.

Minnesota is the leading state in wheat and barley; oats and flaxseed are large crops. Flaxseed is grown for the oil, which is pressed out of the seed; it is known as linseed oil and is used in making paints and varnishes. The state has still vast **forests** of

A fleet of coal steamers in the harbor at Duluth. These same steamers will carry away iron ore or wheat on the return trip east.

white pine in the northern section and it ranks third among the states in the production of lumber.

The northwestern part has the richest deposits of iron ore to be found in the world. Much of the ore is in the form of loose, red earth called *hematite*, which lies so near the surface that it is loaded directly into cars by steam shovels. The trains run out on docks built along the lake and dump the ore into bins, or pockets, from which it is allowed to slide down into great steam barges, which convey it to Chicago, Detroit, Cleveland, Buffalo, and other towns along the Great Lakes, to be made into iron.

Cities and Manufactures. — **Minneapolis**, at the falls of St. Anthony, is the leading city of the world in the manufacture of

flour. It is also noted for lumber mills. It has many beautiful parks. **St. Paul**, ten miles below Minneapolis, is at the head of navigation on the Mississippi and is a shipping-point for products of the state. **Duluth** is at the head of lake Superior. It is the chief shipping-point of the state by way of the Great Lakes. The capital is St. Paul.

QUESTIONS AND TOPICS. — (1) Describe the surface of this state. Climate. Soil. (2) What rivers rise in it? (3) What is said of the Red river valley? (4) Give an account of the cultivation of wheat. (5) Name all the products in which Minnesota is a leading state. Iron ore. (6) What products are shipped from Duluth? (7) Tell some of the places to which each is sent.

MISSOURI

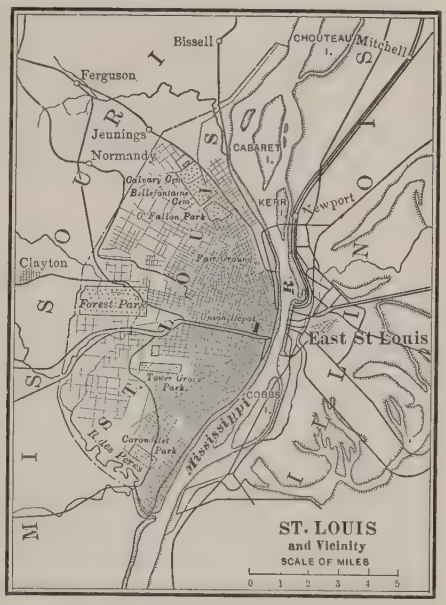
Answer the questions under the MAP, *page* 221.

Resources and Products. — From its size, population, and wealth Missouri is sometimes called the "Empire State of the West."

Shipping watermelons at Blodgett, Missouri.

The northern half is a rolling prairie and raises immense **crops** of grain and hay. The southern half is a hilly region producing lead,

zinc, coal, and iron. Hogs, cattle, horses, sheep, and mules are raised in large numbers. Packed meats, flour, and tobacco are the most valuable **manufactured products.**



Cities. — The largest city is **St. Louis;** it is noted for its transportation facilities by river and rail, and for its manufactures, commerce, and wealth. The city was originally settled by the French. It is the largest city in the Mississippi valley and the fourth in the United States in population and in manufactures. Two fine bridges cross the Mississippi at this point. The city is a meeting-place for trains coming from east and west and vast amounts of freight are handled. Tobacco products are first in value, followed by malt liquors, packed meats, iron work, clothing, and railroad supplies.

Eads bridge over the Mississippi at St. Louis.

Kansas City is the second city in size. It is an important shipping and trading-center and the second live-stock market in the world. It has large meat-packing establishments. **St. Joseph,** located on one of the great bends of the Missouri, is noted for its manufacture of clothing and is an important commercial city.

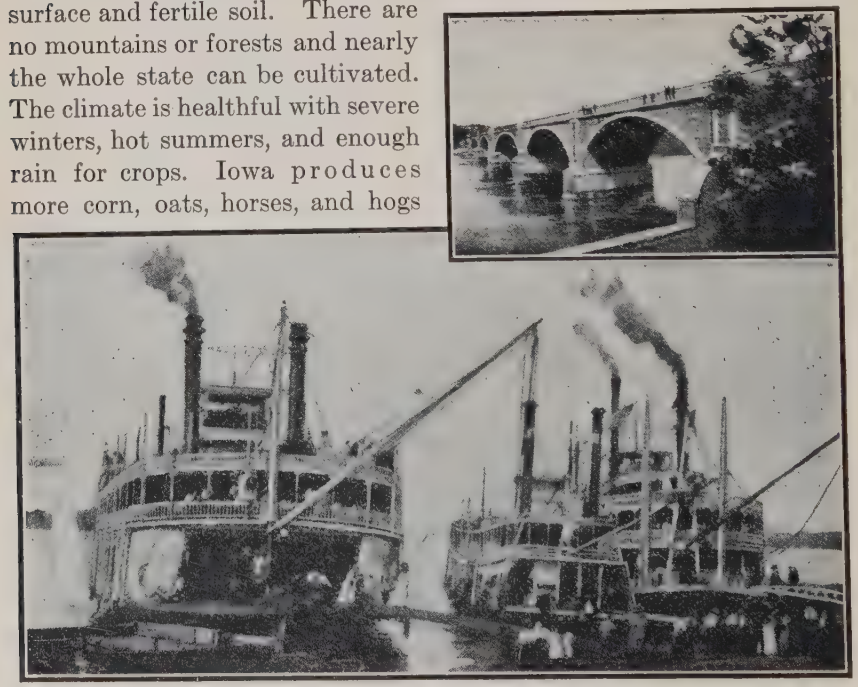
Tobacco and cigars, malt liquors, packed meats, iron ware and machinery, and railroad cars and fittings are the other chief manufactured products of the city. **Jefferson City** is the capital.

QUESTIONS AND TOPICS. — (1) Why called the Empire State of the West? (2) Describe the surface; natural wealth. (3) Compare the products with those of Texas. (4) What difference? (5) What manufactures has the state? (6) Why is St. Louis an important city? (7) Compare with New York, Chicago, Philadelphia, and Boston in size. (8) Describe its industries. (9) What is the second important city?

IOWA

Answer the questions under the MAP, *page* 221.

Natural Features and Products. — Iowa has a gently rolling surface and fertile soil. There are no mountains or forests and nearly the whole state can be cultivated. The climate is healthful with severe winters, hot summers, and enough rain for crops. Iowa produces more corn, oats, horses, and hogs



1. Railroad Bridge over the Des Moines river at Des Moines. 2. River steamboats loading at Dubuque.

than any other state. It is the second state in the production of

wheat and cattle and ranks high in other **farm products.** The packing of meats is the largest manufacturing industry. Butter, cheese, condensed milk, and flour are next in importance. The value of the state's manufacturing industries is only one fifteenth of those of New York.

Iowa is the only state in the Union the population of which has fallen off since 1900. This is due to its almost exclusive devotion to agricultural industries, which with improved methods call for fewer rather than more farm laborers.

Cities. — **Des Moines**, the capital and largest city, is in the center of the coal region of the state. It is the chief cattle and grain market and manufactures medicines and flour. **Dubuque**, the second city, is a railroad center and shipping-point on the Mississippi river. **Davenport** is a cattle and grain market and manufactures machinery, tobacco, and sugar. **Cedar Rapids** has flour and furniture mills; **Burlington** makes carriages and machinery; **Council Bluffs** also has carriage and car shops.

QUESTIONS AND TOPICS. — (1) Describe the climate, surface, soil. (2) In what products does Iowa stand first? What industries grow out of these products? Why are there no forests? (3) What is the chief city? Why would you not expect to find any very large cities in Iowa? Name, locate, and describe the other important cities.

KANSAS

Answer the questions under the MAP, *page* 221.

Surface and Industries. — Kansas is in the exact center of the United States. The eastern part lies in the low prairie region, but the western half is a part of the Great Plains, and the **climate** is often dry during the growing seasons. Water for irrigation is obtained from wells. The soil is a deep loam of great fertility. Agriculture and stock-raising are the chief **industries**. It is the foremost **wheat**-growing state and immense crops of **forage grasses**, such as alfalfa, millet, and prairie grass, are grown for feeding stock. In the number of **hogs** and **cattle** fattened for market Kansas stands next to Iowa and Texas.

Butter, cheese, milk, garden products, honey, and beeswax are also worth annually many millions of dollars. Zinc, coal, petroleum, natural gas, and salt are

found in the eastern and southern parts of the state. There is also considerable timber along the streams.

Manufactures. — The slaughtering of animals and meat-packing and preserving are the leading manufacturing industries. Over a

Stacking alfalfa hay, near Norton, Kansas.

million beef cattle and three million hogs are killed annually. This work is done mainly in **Kansas City**. The value of the manufactures in this city alone is nearly half the value of all the manufactures of the state. The articles next in value are flour, zinc, lumber, and railway cars. The greater part of the products of Kansas are sent out of the state for sale or manufacture.

A flock of sheep feeding in a field of alfalfa, Kansas.

Topeka, **Leavenworth**, and **Wichita** are next to Kansas City in size. Topeka is an important railroad center; Leavenworth is in the coal district; and Wichita ships grain and stock.

QUESTIONS AND TOPICS. — (1) Location and surface of Kansas. Climate and industries. (2) What crops are grown for hogs and cattle? What minerals found in the state? (3) What manufactured products are exported? (4) What is said of Kansas City? What of the other large cities?

NEBRASKA

Answer the questions under the MAP, *page* 221.

Natural Features and Products. — About two thirds of this state lies in the region of the Great Plains. It is a prairie region, destitute of mountains and forests. Tree planting has been carried

The stock yards at Omaha.

on for a number of years with success. In climate, soil, and products Nebraska resembles Kansas, and irrigation is practised in the same manner. The leading **farm products** in order are corn, oats, wheat, barley, rye, potatoes, and forage crops. Chicory, sugar beets, and fruits are also important products. The **live stock** and **dairying** interests are nearly equal in value to the farm crops. In 1897 there

were 550 creameries in the state. In 1907 they numbered about 35,000. Both this state and Kansas have made remarkable advances in the dairying business.

Cities. — The largest city is **Omaha**, on the Missouri river. It is a railway center and shipping-point for the state's products. Three bridges cross the Missouri at this point. The machine and railway shops of the city are the largest industrial plants. Paints and oils are manufactured. At **South Omaha** are meat-packing industries, which rank next to those of Chicago and Kansas City. **Lincoln**, the capital, is the seat of the State university, the leading institution of higher learning.

QUESTIONS AND TOPICS. — (1) Location and surface. Compare with Kansas. Name the leading farm crops. What is said of the dairying industries? (2) Location and industries of the largest city. Other cities and their importance.

NORTH DAKOTA

Answer the questions under the MAP, *page* 221.

Surface and Products. — North Dakota lies chiefly in the region

A "butte," or flat-topped mountain, in North Dakota.

of the plains. The western part contains many hills and fertile valleys. The **Red river valley**, along the eastern border, is a famous

wheat-growing region. Oats, barley, and flax are the crops next in importance to wheat. In flaxseed, North Dakota is the foremost state. Many sheep and cattle are raised. Underlying the central and western parts of the state are vast beds of lignite, a variety of soft coal, which forms a cheap and abundant fuel.

A farmer mining his own coal in North Dakota.

The **wheat farms** in the Red river valley are among the largest in the world, many of them containing from 10,000 to 20,000 acres. To cultivate farms as large as this, hundreds of men and horses and a vast number of farming tools and machines are required. The larger farms are provided with grain elevators for storing the wheat until it is sold. **Flour** is the chief manufacture of the state, and **butter** is next in value.

Cities. — The chief cities are **Bismarck**, the capital, and **Fargo** and **Grand Forks**, all of which are manufacturing towns. **Jamestown** and **Valley City** are in the wheat section.

QUESTIONS AND TOPICS. — (1) Surface. What famous grain-growing region is partly in North Dakota? In what crop is it the leading state? What are the other important crops? (2) Describe the work on one of the large farms. (3) What are the chief manufactures? Lignite. (4) Locate and describe the largest cities.

SOUTH DAKOTA

Answer the questions under the MAP, *page* 221.

Surface and Products. — The surface of this state is very rough and hilly. The Black Hills are from 3,000 to 7,000 feet high and cover an area of 6,000 square miles. **Gold**, **silver**, **tin**, and **copper** are found in this region. The people of South Dakota are employed mainly in farming and stock-raising. Corn, wheat, and flaxseed are the largest crops. Beef cattle, butter, and cheese are the farm products next in value.

The country south of the Black Hills is known as the "Bad Lands" on account of the jagged rocks which abound. There are many flat-topped hills, which are called buttes. This entire region, once thought to be worthless, has been found to contain extensive sections useful for agriculture.

A view of Deadwood, South Dakota.

Cities and Manufactures. — Flour and butter are the only large manufactures of the state. **Sioux Falls**, the chief city, is a trading and manufacturing town. **Pierre**, the capital, is the leading live-stock market. **Deadwood** is a noted mining town in the Black Hills region.

QUESTIONS AND TOPICS. — (1) Surface. Minerals. Leading crops. (2) What is said of the manufactures? (3) Name the chief cities and give the location of each. For what is each noted?

ANNUAL VALUE OF THE CHIEF PRODUCTS OF THE NORTH CENTRAL STATES

KANSAS

Products	Value	Products	Value
Manufactures	$198,245,000	Oats	$11,690,000
Farm Animals	190,957,000	Natural Gas	7,692,000
Wheat	83,715,000	Potatoes	5,679,000
Corn	83,282,000	Apples	3,214,000
Dairy Products	42,061,000	Cement	2,875,000
Hay	15,912,000	Barley	2,576,000

Ohio

Products	Value	Products	Value
Manufactures	$960,812,000	Petroleum	$15,000,000
Farm Animals	125,954,000	Lumber	10,676,000
Corn	85,715,000	Potatoes	9,479,000
Dairy Products	73,288,000	Tobacco	8,741,000
Hay	43,960,000	Natural Gas	8,000,000
Coal	28,000,000	Wool	5,060,000
Wheat	26,056,000	Building Stone	4,764,000
Oats	23,053,000	Cement	1,305,000
Apples	20,676,000	—	—

Indiana

Manufactures	$393,945,000	Apples	$8,630,000
Farm Animals	109,350,000	Cement	5,400,000
Corn	98,260,000	Potatoes	4,693,000
Dairy Products	48,000,000	Building Stone	3,647,000
Wheat	36,436,000	Petroleum	3,204,000
Hay	32,350,000	Tobacco	2,090,000
Oats	21,649,000	Wool	1,732,000
Coal	13,840,000	Natural Gas	1,313,000
Lumber	10,388,000	—	—

Illinois

Manufactures	$1,410,000,000	Petroleum	$22,650,000
Farm Animals	193,758,000	Apples	9,178,000
Corn	192,280,000	Potatoes	9,104,000
Dairy Products	70,262,000	Building Stone	3,135,000
Oats	60,444,000	Lumber	2,518,000
Coal	50,000,000	Cement	2,707,000
Hay	40,936,000	Fisheries	1,413,000
Wheat	32,254,000	Wool	1,297,000

Michigan

Manufacturing	$429,420,000	Potatoes	$12,789,000
Farm Animals	79,843,000	Apples	3,911,000
Dairy Products	70,051,000	Rye	3,743,000
Corn	42,760,000	Coal	3,323,000
Hay	30,974,000	Wool	2,877,000
Copper	30,000,000	Cement	2,556,000
Lumber	22,967,000	Salt	2,500,000
Oats	17,737,000	Fisheries	1,473,000
Wheat	16,318,000	Barley	1,060,000

Wisconsin

Manufactures	$411,190,000	Tobacco	$3,419,000
Farm Animals	96,327,000	Wheat	3,345,000
Dairy Products	70,346,000	Rye	3,214,000
Hay	34,801,000	Building Stone	2,158,000
Oats	31,122,000	Iron Ore	1,700,000
Corn	30,353,000	Zinc	1,648,000
Lumber	26,064,000	Wool	1,609,000
Barley	13,579,000	Fisheries	1,067,000
Potatoes	10,155,000	—	—

Minnesota

Products	Value	Products	Value
Manufactures	$307,858,000	Lumber	$22,546,000
Wheat	90,317,000	Barley	14,853,000
Farm Animals	89,063,000	Hay	9,732,000
Dairy Products	48,050,000	Potatoes	6,440,000
Iron Ore	42,314,000	Building Stone	1,500,000
Oats	31,601,000	Rye	1,368,000
Corn	28,818,000	—	—

Missouri

Manufactures	$439,549,000	Lumber	$8,208,000
Farm Animals	160,540,000	Oats	8,011,000
Corn	126,166,000	Apples	6,496,000
Dairy Products	44,054,000	Potatoes	5,012,000
Hay	30,868,000	Cotton	3,835,000
Wheat	29,990,000	Cement	2,571,000
Zinc	11,624,000	Building Stone	2,306,000
Lead	10,286,000	Wool	1,654,000

Iowa

Farm Animals	$270,830,000	Potatoes	$7,098,000
Manufactures	160,572,000	Wheat	6,924,000
Corn	142,002,000	Barley	5,009,000
Dairy Products	83,451,000	Apples	3,129,000
Hay	42,479,000	Lumber	1,914,000
Oats	40,635,000	Wool	1,398,000
Coal	11,706,000		

Nebraska

Manufactures	$154,918,000	Oats	$21,639,000
Farm Animals	145,350,000	Hay	13,950,000
Corn	97,030,000	Potatoes	4,914,000
Dairy Products	55,811,000	Barley	1,135,000
Wheat	44,188,000	Apples	1,343,000

North Dakota

Wheat	$83,501,000	Barley	$8,113,000
Farm Animals	42,430,000	Corn	3,325,000
Oats	16,368,000	Potatoes	1,980,000
Manufactures	10,218,000	Hay	1,330,000
Dairy Products	8,362,000	—	—

South Dakota

Farm Animals	$65,173,000	Barley	$8,960,000
Wheat	42,839,000	Gold	7,742,000
Corn	32,635,000	Hay	4,100,000
Dairy Products	16,534,000	Potatoes	2,570,000
Oats	14,790,000	Wool	1,099,000
Manufactures	13,085,000	—	—

CHAPTER XII

THE WESTERN STATES

For the physical and other features of this region as a whole, see *pages* 36–40.

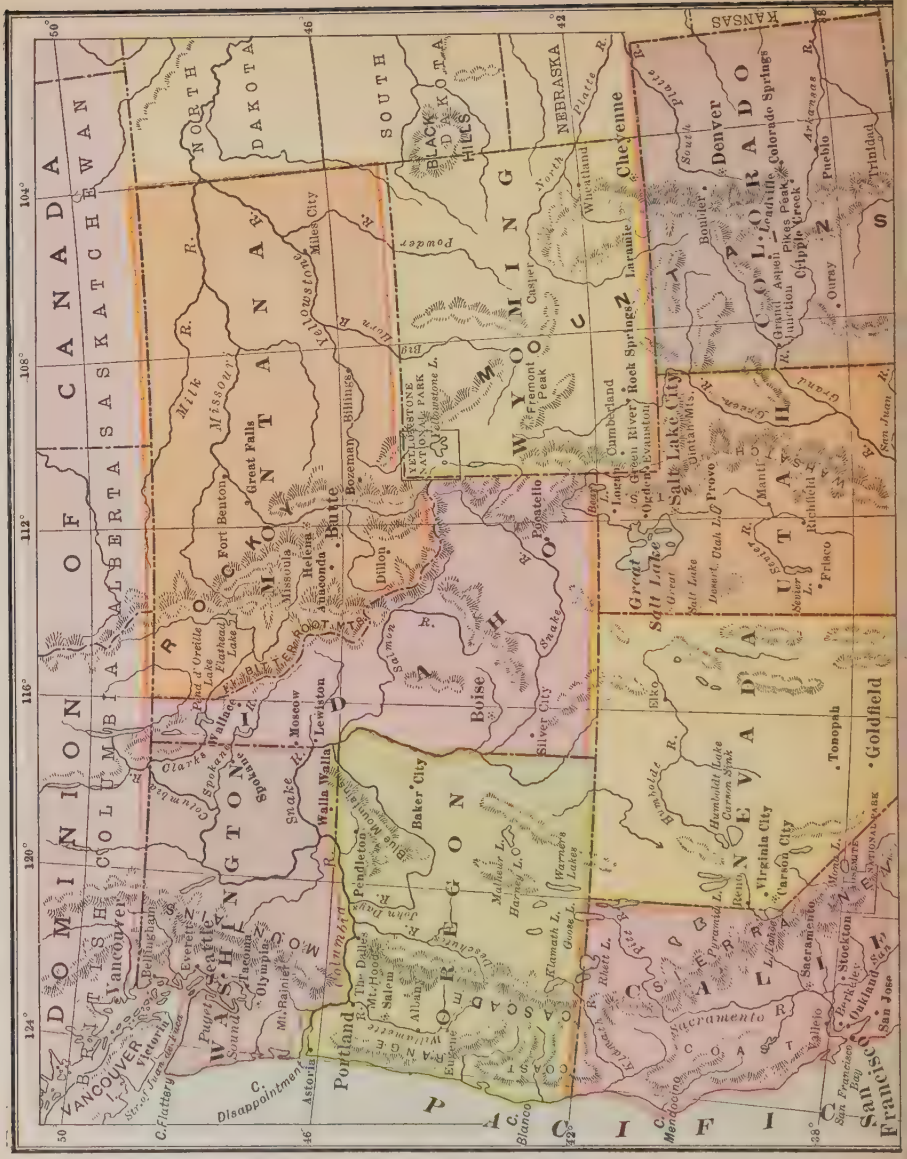
COLORADO

Answer the questions under the MAP, *page* 251.

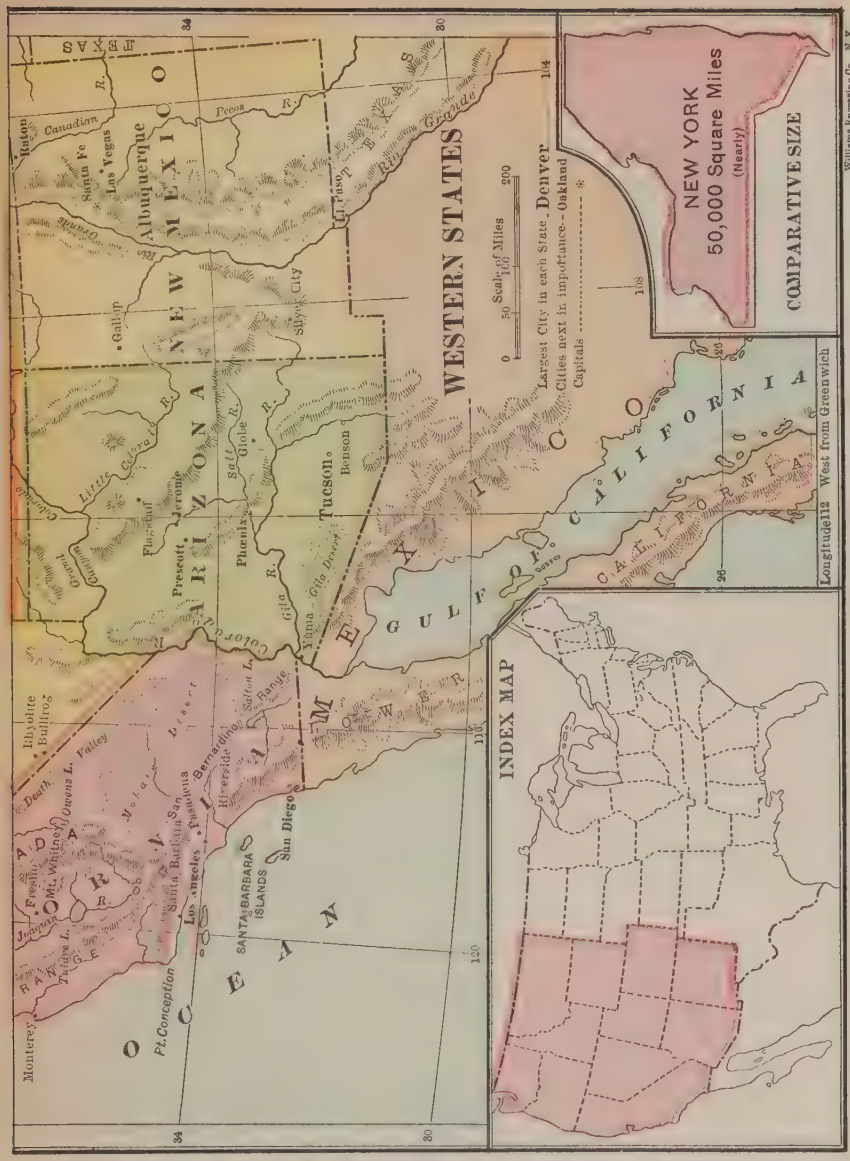
Natural Features. — Colorado is divided into two nearly equal parts by the Rocky mountains, which here attain their greatest elevation. This great watershed, or "Continental Divide," is made up of many irregular ridges projecting from the main range, of deep valleys and canyons, and lofty snow-covered peaks. It is crossed by three trunk lines of **railroads** which, by following the canyons and winding about the ridges, gradually ascend to the summit of the divide. The eastern part of the state lies in the Great Plains, which gradually ascend to the plateau region of the central part.

Four great **rivers** have their sources in the Great Divide. The Platte and the Arkansas drain the eastern slope, and the Colorado and the Rio Grande the western. The **climate** of Colorado is dry and healthful. This and the magnificent scenery attract tourists from all parts of the world. Among the mountains is a series of level plateau regions called parks, among which are North, South, Middle, and San Luis. These places are well watered and very productive.

States	Area, Sq. Miles	Population Census of 1910	Capital	Chief City	Population 1910
Colorado	103,948	799,024	Denver	Denver	213,381
Montana	146,572	376,053	Helena	Butte	39,165
Wyoming	97,914	145,965	Cheyenne	Cheyenne	11,320
Utah	84,990	373,351	Salt Lake City	Salt Lake City	92,777
Idaho	84,313	325,594	Boise	Boise	17,358
Arizona	113,956	204,354	Phoenix	Tucson	13,193
New Mexico	122,634	327,301	Santa Fe	Albuquerque	11,020
Nevada	110,690	81,875	Carson City	Reno	10,867
California	158,297	2,377,549	Sacramento	San Francisco	416,912
Oregon	96,669	672,765	Salem	Portland	207,214
Washington	69,127	1,141,990	Olympia	Seattle	237,194



MAP STUDIES FOR THE GROUP. — (1) How does this group of states compare in size with the other groups? (2) Name its boundaries. What groups of states east? Which state of this group is largest? What states are crossed by the Rocky mountains? (3) Locate the Wasatch mountains. What mountain ranges in the western part? (4) Describe the two largest rivers in this group. Trace the "Great Divide" between the Missouri and Columbia river basins. (5) Name the four eastern states of this group; the three most western. (6) On an outline map fill in the names of states, lakes, and rivers and locate the capital and chief cities of each state.



MAP STUDIES FOR EACH STATE. — (1) What water boundaries has this state? (2) What states or countries border it? (3) What mountains, rivers, or lakes does it contain? (4) What canals or railroads cross it? (5) What is the latitude of its largest city? (6) What is the time at this city when it is 12 o'clock noon at New York? (7) How does this state compare with your state in size and population? (8) Through what seaport is the commerce of this state carried on? (9) Name the routes by which goods are sent to this port. (10) On an outline map of this group of states insert the names of the capital, the chief cities, and the boundaries of this state.

Industries and Products. — Colorado is preëminently a mining state. It produces more **gold** and **silver** than any other, and large amounts of copper, lead, iron, and coal. The **Cripple Creek** region is one of the most productive gold districts of the world. The **farming** industries depend upon mining in the same manner as in Massachusetts they depend upon manufacturing. The grain, flour, fruits, and vegetables find a market in the mining towns.

A pile of sugar-beets just delivered at a factory in Sugar City, Colorado.

The chief farming sections are in the river valleys and on the elevated plains. As the rainfall in Colorado has an average of less than twenty inches annually, extensive irrigation plants are necessary in the farming sections. The state is well equipped with **railroads**, which are engaged chiefly in carrying supplies for the mines. Among these are timber, machinery and engines, and supplies of provisions for the people.

Cities. — The capital of Colorado is **Denver**, the "Queen City of the West." It is built on both sides of the South Platte river and commands a magnificent view of the mountains to the westward. It is the chief center of trade for the state. Railroads from every direction enter Denver and bring to it the greater part of the wholesale trade. Denver is also a market for live stock and has various plants for smelting ores and for manufacturing **iron** and **steel**. **Leadville** is a noted mining city southwest of Denver. It produces about one third the lead mined in the United States, besides a large amount of silver.

The silver mines are noted for their great depth. In one of them the ore is mined on fifteen different levels. Long passages are dug out from the main shaft, which at different points are enlarged into chambers resembling the rooms of a house. Heavy framework of huge timbers must be built in the rooms and passages to support the ceilings. Besides lead and silver, the ore contains small amounts of copper, gold, and other metals, which are separated by chemical processes.

A view of Denver, Colorado.

Pueblo, an important city on the Arkansas river, is near the most productive coal mines of the state. Its manufactures are chiefly iron and steel. **Colorado Springs** is a noted health resort near Pike's peak.

QUESTIONS AND TOPICS. — (1) Describe the Continental Divide. Drainage of Colorado. Parks. (2) Chief industries. What is said of the farming industries? Of the railroads? (3) Location and importance of Denver. Its industries. Describe the other cities.

MONTANA

Answer the questions under MAP, *page* 251.

Surface and Industries. — The eastern part of Montana consists of broad plains along the Yellowstone and Missouri rivers. The **climate** is dry and well suited to sheep-raising, in which Montana far surpasses any other state. There are also many cattle ranches. Good **crops** of wheat and oats are grown. But the most important industry of Montana is the **mining** of copper, in which the state ranks second, the annual product being about 300,000 tons. Butte and

Anaconda are the centers of the copper mining and smelting industries and employ about 14,000 people. Large amounts of gold and silver are also found in the copper ore.

Cities. — **Butte** is the chief trading city. It supplies the mines and miners with machinery and all the necessary outfits and supplies. The city takes its name from a cone-shaped mass of volcanic rock, or

Anaconda Hill, Montana, the richest copper section in the world. The hill is thickly planted with mining works, and the homes of the miners are shown in the foreground.

butte, that stands near by. **Helena**, the capital, has industries similar to those of Butte. **Anaconda** is noted for its great copper-smelting works. Here the ore is heated in great furnaces to extract the crude copper, which must afterward be refined or separated from the gold, silver, and other metals mixed with it.

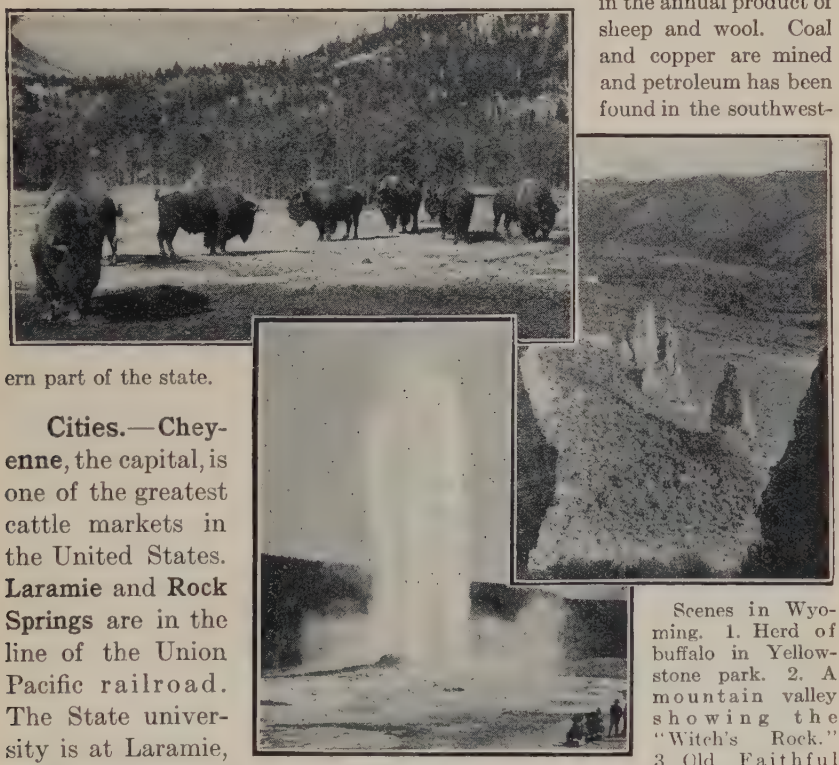
QUESTIONS AND TOPICS. — (1) What are the industries of the eastern part of Montana? (2) The most important industry. (3) What is said of Butte and Anaconda? (4) How is copper obtained from the ore?

WYOMING

Answer the questions under MAP, *page* 251.

Surface, Climate, and Industries. — Wyoming is a region of high plateaus, mountains, and valleys. The southern part is almost a desert, but the higher and cooler parts condense considerable rain from the westerly winds. In the northwest is the **Yellowstone National Park**, famous for its hot springs, spouting geysers, lakes, waterfalls, and canyons.

Wyoming is noted for its **sheep** and **cattle** ranches. It is second only to Montana in the annual product of sheep and wool. Coal and copper are mined and petroleum has been found in the southwestern part of the state.



Scenes in Wyoming. 1. Herd of buffalo in Yellowstone park. 2. A mountain valley showing the "Witch's Rock." 3. Old Faithful Geyser.

Cities.—**Cheyenne**, the capital, is one of the greatest cattle markets in the United States. **Laramie** and **Rock Springs** are in the line of the Union Pacific railroad. The State university is at Laramie, and Rock Springs is in the coal region.

There are extensive **irrigation works** in the southern part of Wyoming, built by the United States Government. The streams, fed by the melting snow of the mountains, supply the water, which is stored in the reservoir and distributed to the fields.

QUESTIONS AND TOPICS. — (1) Surface of this state. (2) Why do the higher regions have the most rainfall? (3) What is said of sheep-ranching? (4) Minerals. (5) Chief cities and for what noted.

IDAHO

Answer the questions under MAP, *page* 251.

Surface and Products. — Idaho consists of lofty mountains, plateaus, and the plains of the Snake river valley. It is next to Montana and Wyoming in **sheep** and **wool**. Good crops of **grain** and **flaxseed** are produced. Many irrigation canals have been built and much land has been made productive. The chief wealth of the state, however, is in its rich **mines** of lead, gold, silver, and copper. Coal, iron, and salt are also found. In lead, Idaho is the foremost state. **Boisé**, the capital, has manufactures of iron and lumber.

1. Shoshone falls, Idaho. 2. A canyon showing stream at low water in Idaho.

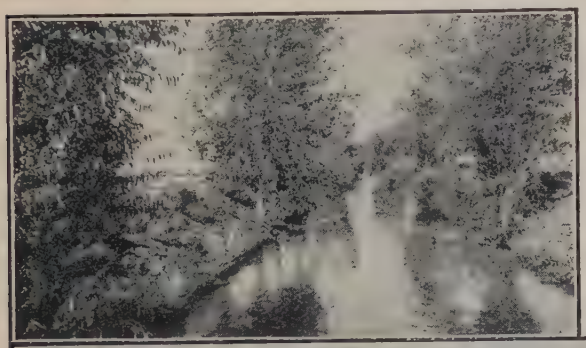
QUESTIONS AND TOPICS. — (1) Surface. What mountains cross the state? (2) Live stock. How suited to this industry? (3) Farming. (4) Mining. (5) What is the capital?

ARIZONA

Answer the questions under MAP, *page* 251.

Surface and Products. — The greater part of Arizona is a high plateau, having the driest climate to be found in North America.

Through the northern part of the territory the Colorado river has cut one of the most wonderful **canyons** in the world (see *page* 37). The rocky walls rise above the plunging and foaming river to the height of 5,000 feet. They are curiously cut and carved and are wonderfully colored in reds, browns, and yellows. How



1. Irrigation canal. 2. Drying fruit on irrigated farm in the Salt river valley, Arizona.

many thousands of years it has taken the river to cut the mighty gorge through the rocks we do not know, but we may learn from it something of the great age of the Rocky mountains and of the still greater age of other parts of the United States.

Arizona is chiefly a **grazing** and **mining** region. It is the third among the states and territories in the production of copper. Gold, silver, and lead are also mined. The smelting and refining of copper is the only important manufacturing industry in this state.

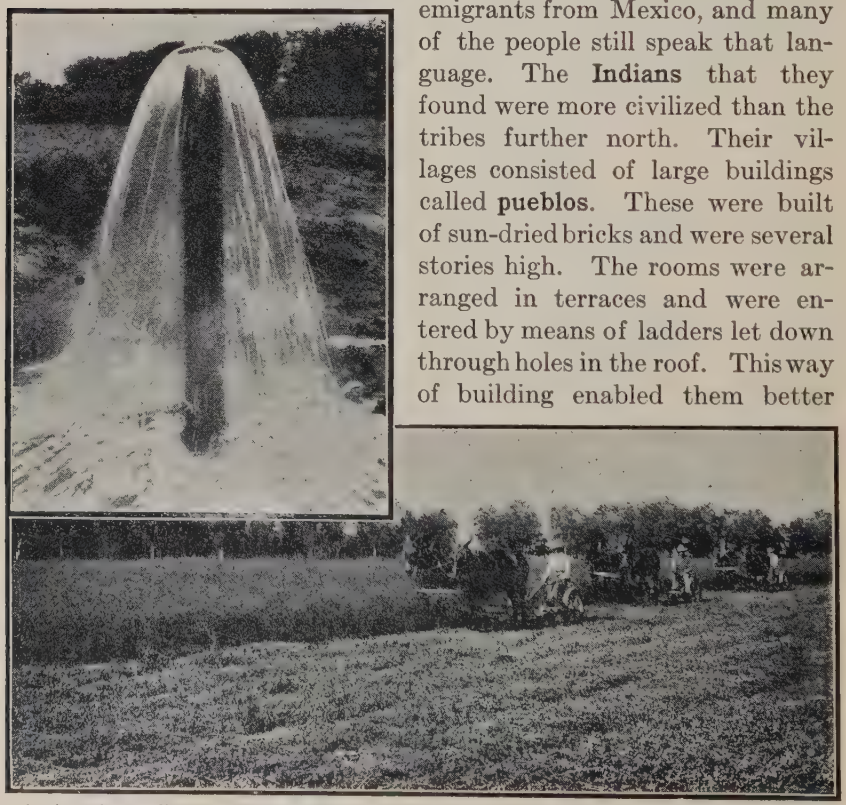
Cities. — **Tucson**, the largest city, has smelting works, refineries for gold, silver, and copper ores, and supplies all kinds of mining outfits. **Phoenix**, the capital, is in the irrigated farming regions.

QUESTIONS AND TOPICS. — (1) Surface and climate. (2) Describe the Colorado canyon. What does it teach about the age of the mountains? (3) Mining industries. (4) Cities.

NEW MEXICO

Answer the questions under MAP, *page* 251.

People and Industries. — New Mexico was settled by Spanish emigrants from Mexico, and many of the people still speak that language. The **Indians** that they found were more civilized than the tribes further north. Their villages consisted of large buildings called **pueblos**. These were built of sun-dried bricks and were several stories high. The rooms were arranged in terraces and were entered by means of ladders let down through holes in the roof. This way of building enabled them better



1. Artesian well in the Pecos valley. 2. Cutting a heavy crop of alfalfa in the Pecos valley, New Mexico. The crop shows the effects of irrigation.

to defend themselves; for when the ladders leading from the ground were drawn up, it would be very difficult for an enemy to force an entrance.

Sheep-raising and **mining** are the chief industries. Only Wyoming and Montana produce more sheep and wool than New Mexico. Coal, copper, gold, silver, and lead are mined. The rainfall of the territory is very slight, but where water can be obtained for irrigation splendid crops and the most delicious fruits can be grown. The valley of the Pecos river is the most productive irrigated region.

Cities. — The capital, **Santa Fé**, was founded by the Spaniards in 1582 and is the second oldest city in the United States. **Albuquerque** is the largest city and is an important railroad and trading center.

QUESTIONS AND TOPICS. — (1) What is said of the inhabitants of this state? (2) Describe the pueblos. (3) Chief industries. (4) Effect of irrigation. (5) Chief cities.

UTAH

Answer the questions under the MAP, *page* 251.

Natural Features. — Utah lies in the basin region of the Western

View of a part of Salt Lake City, showing the Mormon Temple on the right. Wasatch mountains in the background.

highlands. The **Wasatch** mountains cross the state from north to south. The drainage of the western slope is received by numerous

salt lakes, the largest of which is Great Salt Lake. East of the mountains is the Colorado plateau through which that river and its branches have cut a series of deep canyons. Near the San Juan river in the southeastern part of the state are the most wonderful **natural bridges** in the world. The western part is practically a desert. Through the central portion, near the base of the Wasatch mountains, is a productive agricultural region made fertile by irrigation.

Utah was settled by the **Mormons**. They built Salt Lake City and began to

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The Augusta natural bridge across White river canyon, San Juan county, Utah. Length of span 261 feet; height of arch 157 feet. Width of roadway at the top 35 feet.

cultivate the soil by irrigation, raising large crops of grain, vegetables, and fruits. It has become a leading state also in the production of sheep and wool. The mining interests have been more recently developed and the state yields large amounts of copper, gold, silver, lead, and coal.

Cities. —The capital, **Salt Lake City**, is a beautiful and flourishing business center for the most productive part of the state. The Mormon Temple is its most noted building. **Ogden, Provo**, and

Logan are flourishing towns in the irrigated district. The leading **manufactures** are canned goods, beet-sugar, and textiles.

QUESTIONS AND TOPICS. — (1) Location of Utah. Describe its surface and climate. Natural curiosities. (2) Agriculture. What are the chief productions? What is said of minerals? (3) Locate and describe the chief cities.

NEVADA

Answer the questions under MAP, *page* 251.

Industries. — Nevada has the smallest **population** of any of the states and its farming industries are least in value. **Sheep-raising** is the only important grazing industry. The chief wealth of the state comes from its mines of gold and silver.

The discovery of the rich deposits of gold and silver of the famous "Comstock Lode" in 1859 led to a rapid increase of population, which built up Virginia City and brought Nevada into the Union as a state in 1864. The "Comstock Lode" was a rich vein of rock that contained so

1. Freemont's Peak, Nevada, the highest point of the Sierra Nevada mountains. 2. A view of Reno, Nevada. The Sierras are in the background.

much silver and gold that Nevada at one time led in the production of both these metals. When the vein was followed deep in the earth, hot water flowed into the mine and at last forced the miners to abandon it. Since that time the state has fallen off greatly in population and Virginia City has become almost deserted.

Valuable gold deposits have been discovered recently in the southern part of the state and have caused the towns of **Goldfield**, **Tonopah**, and **Bullfrog** to spring up in the same way as Virginia City. These towns are now the largest in the state. **Reno** is a fine residential town and business center near the western border.

QUESTIONS AND TOPICS. — (1) Size and population. (2) Grazing and mining. (3) The Comstock Lode. Why was it abandoned? (4) Cities and their population.

CALIFORNIA

Answer the questions under the MAP, *page* 251.

Natural Features. — California is the most important of the Western states on account of its size, location, and wealth. As it has the best harbor on the Pacific coast, centrally situated, it carries on an extensive commerce with countries bordering that ocean. The state is 700 miles in length, extending through ten degrees of latitude. The eastern part is crossed by the Sierra Nevada mountains, while in the west the lower coast ranges rise abruptly out of the sea. Between these two mountain systems lies the fertile **valley** of the San Joaquin and Sacramento rivers. This valley has been covered deep with rich deposits of soil from the mountains. In ancient times glaciers plowed out deep valleys on the mountain slopes, and the coarse sand and gravel which they have left formed an excellent soil for the growth of forests. We have accordingly, on these mountain slopes, the heaviest growth of timber to be found anywhere in the world.

The base of a giant redwood tree in California.

The **Sierras** of California contain the loftiest mountain peaks of the United States. Mount **Whitney** and mount **Shasta**, standing at the extremities of the range in this state, are the highest. Directly east of San Francisco is the **Yosemite** valley, a government reservation noted for its big trees, its cataracts, cliffs, and canyons. Near mount Whitney is another national reservation noted for its big trees.

Climate. — The **climate** of California varies widely. The northern half of the state lies in the regions swept by the moist winds from the Pacific. It has therefore an abundance of rain, especially on the western slopes of the mountains, while the eastern slopes are somewhat dry. The **rainfall** diminishes toward the south where the trade winds gradually overpower the western winds. As the trade winds

Orange groves in the San Gabriel valley near Los Angeles.

have already crossed the Rocky mountains, they afford no moisture, and hence this part of the state is very dry. It is nearly destitute of vegetation except where the land is artificially watered. The southern section contains several low arid regions, notably Death valley and the Mohave desert.

History. — The first settlements in California were missions established by Roman Catholic priests from Mexico. Among these were San Francisco, Los Angeles, San José, and Monterey. The province remained under the government of Mexico until 1846, when the numerous American settlers, under the leadership of the explorer **John C. Fremont**, began the "Bear Revolt" and declared California independent. It was soon afterward declared a territory of the United States. The discovery of gold in 1848 brought a large immigration from all parts of the world, and California was admitted as a state in 1850.

Industries and Products. — Mining, originally the chief industry in California, is now second to agriculture. The metal chiefly mined is gold, although copper, tin, quicksilver, and coal are found. **Gold** was at first found in the gravels washed down from the mountains and in the beds of streams. When these sources were exhausted, mining was resorted to, and the metal is now chiefly obtained from the gold-bearing ores of the Sierras. **Coal** is found in the northern and western

A hotel and cottages on mount Wilson, in winter. Mount Wilson is only a three hours ride from Los Angeles. While the summer visitors at this point are sleigh-riding, those at Los Angeles are bathing in the surf.

parts of the state and petroleum in the southern part. The center of the **mercury** region is at New Almaden near San José. About one half the world's supply is obtained here.

From the depressed regions in the southern part of the state, salt, soda, borax, nitrate, and other drugs are found. This region was once the bed of a vast salt lake which evaporated, leaving these minerals behind. The dust is so filled with them that it is poisonous to breathe, and from this fact Death valley takes its name. A few years ago, while engineers were cutting an irrigation canal connecting with

the Colorado river, the entire stream was turned into the canal, and for several months the waters overflowed into the Colorado desert, parts of which are 800 feet below sea level. A vast lake was formed, which is called **Salton sea**. The water in this lake, dissolving the salt and other minerals of the desert, has become so filled with them that it is now evaporated as a means of obtaining salt and chemicals.

Agriculture has become the most valuable industry of California. The principal products are fruits, wheat and barley, hay, potatoes, and sugar beets. The grain region is in the northern part. Barley is the most valuable crop, California being the second state in its production. Beet-sugar is increasing in importance. It is produced chiefly on irrigated fields, and the raw sugar is refined in San Francisco.

A vineyard at Banning, California.

Owing to the equable climate and rich soil all kinds of fruit flourish in California. The apple, grape, pear, and other fruits of the temperate zone grow side by side with the orange, lemon, lime, fig, olive and nut trees of the tropical zone.

In the region about Los Angeles, which has been changed by irrigation from a waste of sand into a fertile garden, tropical fruits grow in great profusion. In the neighborhood of San Francisco are over thirty million fruit trees.

Fresh fruits of every sort are sent by train loads to every part of the United States as well as to foreign countries. The seedless orange and the Tokay grape are sold in all of our cities and in some of the cities of Europe. A vast amount of fruit is preserved by canning and drying. Raisins, wines, and brandy are also important exports, California producing more of these than all the rest of the country

combined. Much of the labor of picking, packing, and preserving fruits is done by Chinese and Japanese laborers, who formerly emigrated in large numbers to the Pacific coast.

California is also an important wool-growing state, the dry climate being well adapted to sheep. The great forests of the northern part of the state form one of the most productive lumber regions of the country. A vast amount of timber is furnished for the mines. Sawed and planed lumber is exported to the countries farther south.

Bathing in the surf at Long Beach, near Los Angeles

Cities. — The cities of California have had a most wonderful growth. San Francisco is now our eleventh city in population. The population of Los Angeles increased over 200 per cent from 1900 to 1910.

San Francisco is the metropolis and chief seaport of the Pacific coast. It is built on a peninsula facing the entrance to San Francisco bay, a commodious harbor. The entrance is known as the "Golden Gate."

Among the leading industries are sugar-refining, ship-building, and the manufacture of mining machinery. There are also numerous flour and lumber mills, preserving factories, and distilleries. Iron and steel and textile goods are manufactured. Steamships connect San Francisco with China, Japan, Australia, Alaska, and the Hawaiian and Philippine islands. Silk and tea are brought across the Pacific

and sent to all parts of the United States. Raw sugar comes from the Hawaiian islands to San Francisco, where it is refined. Hemp, sugar, and tobacco are brought from the Philippines. Wool, grain, flour, lumber, fruit, gold, and silver are the leading exports from San Francisco. These products are sent to the states farther south and to foreign countries. In April, 1906, San Francisco was nearly destroyed by a violent earthquake; this was followed by a fire which burned over the entire business part of the city and made over 200,000 people homeless. The city has been rapidly rebuilt on a much grander scale. On the eastern shore of San Francisco bay is **Oakland,** with a population of 150,000. It is the residence of many people who do business in San Francisco.

At **Berkeley**, north of Oakland, is the University of California. The Leland-Stanford University is about twenty-five miles south of San Francisco. **Sacramento**, the capital, is the center of a rich farming community and is an important trading town. **Santa Barbara** and **San Diego** are famous as winter resorts for invalids.

QUESTIONS AND TOPICS. — (1) Importance of California. Describe its mountains and valleys. Scenery. (2) Account for its variety of climate. What is said of the depressed regions? What is obtained from them? (3) History. Date of admission as a state. (4) Two leading industries. What minerals are found? The Salton sea. Describe the fruit-growing industry. Why are so many varieties found? (5) Growth of cities. Describe San Francisco. Advantages of location. Industries. Make a list of the other leading cities and tell an important fact about each.

OREGON

Answer the questions under the MAP, *page* 251.

Natural Features. — The **Cascade** mountains divide Oregon into two sections, which are quite unlike in surface, climate, and products. The eastern section consists of a rolling plateau seamed by deep canyons having a dry cold climate. The soil is volcanic and is fertile under irrigation. The western section is made up of well-watered slopes and fertile river valleys. The soil is a rich loam and very productive. The rainfall is about five times as great as it is on the plateau region east of the Cascade mountains.

The State capitol at Salem.

Industries and Products. — The western section produces large crops of grain and fruits. The apples, pears, and plums are noted for their size and flavor. Hops are an important product in the valley of the Willamette, and the sugar beet is extensively cultivated. The eastern section is well adapted to grazing, and the product of sheep and wool is very large.

1. Mount Hood. 2. Hydraulic mining in Oregon.

Western Oregon lies in the big timber belt of the Pacific slope. More than half of the state is covered with **forests**. The redwood, hemlock, fir, and spruce are chief varieties. The largest lumber market is Portland. The lumber industries are the most important branch of manufacturing. The second great industry of Oregon is the salmon **fisheries**, in which the state is second. The **mineral resources** are varied. Gold is the most valuable product of the mines. Other minerals are found in small quantities. The state is well supplied with coal, clays, and building stone.

Cities. — The chief commercial and manufacturing city is **Portland**. Near by are mount Hood and mount St. Helena, two lofty peaks of the Cascade range. The spacious harbor on the Willamette makes the city a seaport, although it is 120 miles from the ocean. The largest steamers can enter it. The city has an extensive commerce with Great Britain and the West Indies. Its **exports** are chiefly meat products, grain, and lumber. South of Portland is **Salem**, the capital of the state. A trunk line of railway connects these cities with the other leading towns on the Pacific coast. **Astoria**, founded as a fur-trading station in 1811 by John Jacob Astor, is now

Gold mine and quartz stamping mills at Grant Pass, Oregon. A "stamp mill" contains machinery for crushing the ore and for separating the gold from the impurities and other metals which the ore usually contains.

noted chiefly for its salmon-canning establishments. **Pendleton**, in the northeastern part of the state on a small branch of the Columbia river, is a shipping point for wheat.

QUESTIONS AND TOPICS. — (1) Natural divisions. Describe each section. (2) Farm products of each section. Describe the lumbering and fishing industries. What minerals are found? (3) Chief cities. Railways and commerce.

WASHINGTON

Answer the questions under the MAP, *page* 251.

Surface and Climate. — The Cascade mountains cross this state from north to south, dividing it into two sections which differ greatly in surface, soil, and climate. The eastern section is a plateau region, which was built up thousands of years ago by the **lava** which flowed from volcanoes. All of the volcanoes are now extinct and the lava rock has decayed until a layer of soil has been formed on its surface. There is little **rain** in this section and the wheat fields and orchards must be irrigated to bring good crops. The Columbia river and its

branches have cut deep valleys in the plateau and furnish good **transportation** all the way to the ocean. The western section, which comprises about two thirds of the state, has high mountains and many fertile valleys. The **rain** is abundant and the mountain sides are covered with splendid forests of pine and redwood.

Resources and Occupations. — The chief **resources** of Washington are its soil, forests, fisheries, and mines of coal and iron. **Lumbering** is the most important occupation in the state. The trees are of such great size that steam engines are used to move the logs about. Railroads are built into the forests to transport the logs to the mills. The largest saw-mills are at Seattle and Tacoma.

Second Avenue, Seattle, looking north.

Fishing is the second great industry in western Washington. The most valuable fishing-grounds are in Puget sound and in the Columbia river and its branches. Cod, halibut, herring, oysters, and clams are obtained in the sound. Salmon is the chief river fish. The salmon canned in the state is valued about $2,000,000 annually. The **coal fields** cover several thousand square miles and several million tons are mined annually. Gold, iron, lead, and copper are found.

Cities. — The largest city and chief seaport of the state is **Seattle.**

Part of a flock of 80,000 sheep near Spokane, Washington.

It is the terminus of three great railway lines, and steamships sail from this port to all parts of the Pacific ocean. Lumber, coal, flour, and fish are the chief products and exports. Across the sound from Seattle are shipyards and a dry dock belonging to the United States government.

View of a part of Spokane, showing mount Baldy in the distance.

Spokane, the second city, is located at the falls in the Spokane river. **Tacoma** is the third city in size, and has industries similar to those of Seattle. The largest lumber mill in the world is at Tacoma. It is a shipping-point for wheat. **Wallawalla** is also in the grain-growing region. The capital of Washington is **Olympia.**

QUESTIONS AND TOPICS. — (1) Natural divisions of Washington. (2) Describe the eastern section; the western section. (3) What is said of the lumber industry in Washington? (4) What of the fishing industry? (5) Describe the location of Seattle; what are its chief products? (6) Name the other leading cities and an important fact about each.

ANNUAL VALUE OF CHIEF PRODUCTS OF THE WESTERN STATES

Colorado

Products	Value	Products	Value
Manufactures	$100,143,000	Silver	$5,429,000
Farm Animals	49,154,000	Oats	3,947,000
Hay	17,600,000	Wool	2,894,000
Gold	13,586,000	Lead	2,413,000
Coal	13,586,000	Zinc	2,339,000
Wheat	10,005,000	Copper	1,840,000
Dairy Products	6,038,000	Lumber	1,563,000
Potatoes	5,928,000	—	—

Wyoming

Live Stock	$39,145,000	Manufacturing	$3,523,000
Coal	8,868,000	Wheat	2,274,000
Wool	8,232,000	Oats	1,750,000
Dairy Products	6,623,000	Potatoes	1,008,000
Hay	5,918,000	—	—

Montana

Farm Animals	$52,161,000	Silver	$5,539,000
Manufactures	40,930,000	Lumber	4,170,000
Copper	33,330,000	Coal	3,771,000
Hay	9,950,000	Gold	3,160,000
Wheat	9,634,000	Dairy Products	2,575,000
Wool	9,004,000	Potatoes	2,295,000
Oats	6,464,000	Barley	1,197,000

Idaho

Farm Animals	$21,657,000	Oats	$3,894,000
Hay	12,367,000	Dairy Products	2,530,000
Manufactures	8,768,000	Potatoes	2,400,000
Lead	8,270,000	Barley	1,463,000
Lumber	7,512,000	Gold	1,443,000
Wool	4,783,000	Wheat	1,074,000
Silver	4,042,000	—	—

Utah

Products	Value	Products	Value
Manufactures	$24,939,000	Dairy Products	$3,843,000
Farm Animals	21,474,000	Lead	3,556,000
Hay	9,742,000	Wool	3,281,000
Copper	9,420,000	Coal	3,119,000
Wheat	5,481,000	Oats	1,319,000
Silver	4,520,000	Potatoes	1,161,000
Gold	3,946,000	—	—

Arizona

Copper	$38,217,000	Gold	$2,500,000
Manufactures	28,083,000	Silver	1,551,000
Farm Animals	15,454,000	Wool	1,218,006
Hay	4,608,000	Barley	1,126,000

New Mexico

Farm Animals	$31,727,000	Coal	$3,386,000
Manufactures	5,705,000	Lumber	1,597,000
Hay	5,339,000	Wheat	1,175,000
Wool	4,368,000	—	—

Nevada

Farm Animals	$12,169,000	Silver	$5,086,000
Gold	11,689,000	Manufactures	3,096,000
Hay	5,187,000	Wool	1,424,000

California

Manufactures	$367,218,000	Hay	$12,708,000
Farm Animals	67,303,000	Potatoes	6,006,000
Dairy Products	25,988,000	Copper	5,232,000
Petroleum	24,433,000	Clay Products	4,523,000
Barley	23,140,000	Oats	4,145,000
Gold	19,329,000	Wool	2,894,000
Lumber	15,211,000	Fisheries	1,969,000
Wheat	12,820,000		

Oregon

Farm Animals	$33,917,000	Dairy Products	$6,072,000
Manufactures	30,596,000	Oats	5,661,000
Lumber	18,010,000	Potatoes	4,416,000
Wheat	15,231,000	Fisheries	1,356,000
Hay	10,120,000	Barley	1,309,000

Washington

Manufactures	$66,166,000	Coal	$6,690,000
Lumber	37,090,000	Oats	4,751,000
Farm Animals	22,159,000	Barley	4,601,000
Wheat	12,584,000	Fisheries	3,513,000
Hay	11,172,000	Potatoes	3,276,000
Dairy Products	8,113,000	—	—

CHAPTER XIII

THE OUTLYING TERRITORIES AND DEPENDENCIES OF THE UNITED STATES

Territorial Growth. — As a result of the Revolutionary war the United States became an independent republic embracing all the territory east of the Mississippi river, with the exception of the Spanish possessions in Florida. The inhabited part of this country was then confined to the Atlantic plain with a few scattered settlements west of the mountains. The rich farming districts of the Mississippi valley early attracted immigration, and soon after the close of the century the entire region west of the Appalachian highland had been organized into states and territories.

In 1803, owing to the war that was then going on between France and England, the opportunity came of purchasing the district known as **Louisiana**, which included all the country between the Mississippi river and the summits of the Rocky mountains. The price paid was $15,000,000. In 1819 East and West **Florida** were purchased from Spain for $5,000,000. For a number of years both the British and Americans had jointly occupied the northwestern country, known as the **Oregon** territory. In 1846 the forty-ninth parallel was agreed upon as the boundary between the British possessions and the United States.

The Mexican province of **Texas** had been settled principally by emigrants from the United States, who obtained large grants of land from the Mexican government. Owing to the harsh rule of Mexico, they rebelled, and in 1836 established an independent republic. Texas applied for admission into the Union and became a state in 1845. Disputes arising from the admission of Texas led to the Mexican war (1846–1848). During this war New Mexico and California were taken, and at its close a treaty was made with Mexico by which all this territory came under the control of the United States on payment of $15,000,000. These additions, called the **Mexican cessions**, embraced an area exceeding half a million square miles. In 1853, owing to difficulties in fixing the southern boundary line of the Mexican cessions, the **Gadsden Purchase** was negotiated, for the sum of $10,000,000.

The northern **boundary** of the United States was settled by treaties with Great Britain in 1842 and in 1872. The former treaty settled a long-standing dispute

DOMINION OF CANADA
PACIFIC OCEAN
ATLANTIC OCEAN
MEXICO
GULF OF MEXICO
CUBA
OREGON COUNTRY
ACQUIRED BY TREATY WITH GREAT BRITAIN
1846
LOUISIANA PURCHASE
FROM FRANCE
1803
MEXICAN CESSION
AT THE CLOSE OF THE MEXICAN WAR
1848
TEXAS ANNEXATION
1845
UNITED STATES
1783
GADSDEN PURCHASE
1853
FLORIDA PURCHASE
FROM SPAIN
1819
ALASKA
FROM RUSSIA
1867
ALASKA
SCALE OF MILES
TERRITORIAL GROWTH OF THE
UNITED STATES
SCALE OF MILES
0 50 100 200 300
TROPIC OF CANADA
TROPIC OF CANCER
Longitude West from Greenwich
Lake of the Woods
Lake Superior
Missouri R.
Yellowstone R.
Red R.
Mississippi R.
Arkansas R.
Colorado R.
Rio Grande
Columbia R.
Snake R.
Great Salt Lake
Platte R.
Astoria
Portland
Ft. Hall
Salt Lake City
Omaha
Kansas City
Dents Fort
St. Louis
Cincinnati
Louisville
Evansville
Memphis
Norfolk
Richmond
Charleston
Savannah
St. Augustine
Pensacola
Mobile
Natchez
New Orleans
Houston
Austin
San Antonio
Alamo
Corpus Christi
Brownsville
Matamoras
Palo Alto
Santa Fe
Albuquerque
Los Angeles
San Diego
San Francisco (Yerba Buena)
Monterey
Detroit
Ft. Dearborn (Chicago)
Cleveland
Pittsburg
Buffalo
Albany
Boston
New York
Philadelphia
Montreal
Quebec
St. Lawrence R.
L. Ontario
L. Erie
L. Huron
L. Michigan
NORTH CAROLINA
SOUTH CAROLINA
GEORGIA
VIRGINIA
NEW YORK
PENNSYLVANIA
NEW JERSEY
MASSACHUSETTS
ARCTIC OCEAN
ASIA
ARCTIC CIRCLE
CANADA
Bering Sea
PACIFIC OCEAN
ACQUIRED IN THE LOUISIANA PURCHASE BUT HELD BY SPAIN UNTIL 1802

between Maine and Canada, and the latter laid out the water boundary between the Oregon territory and British Columbia.

The entire territory included within the boundaries above described was gradually divided into territories which, when their population became great enough, were admitted into the Union as states. The last two territories to be admitted were Arizona and New Mexico in 1910, so that the total number of states is now forty-eight.

We shall now study the acquisitions of territories by the United States beyond the above-mentioned boundaries.

NON-CONTIGUOUS TERRITORY OF THE UNITED STATES

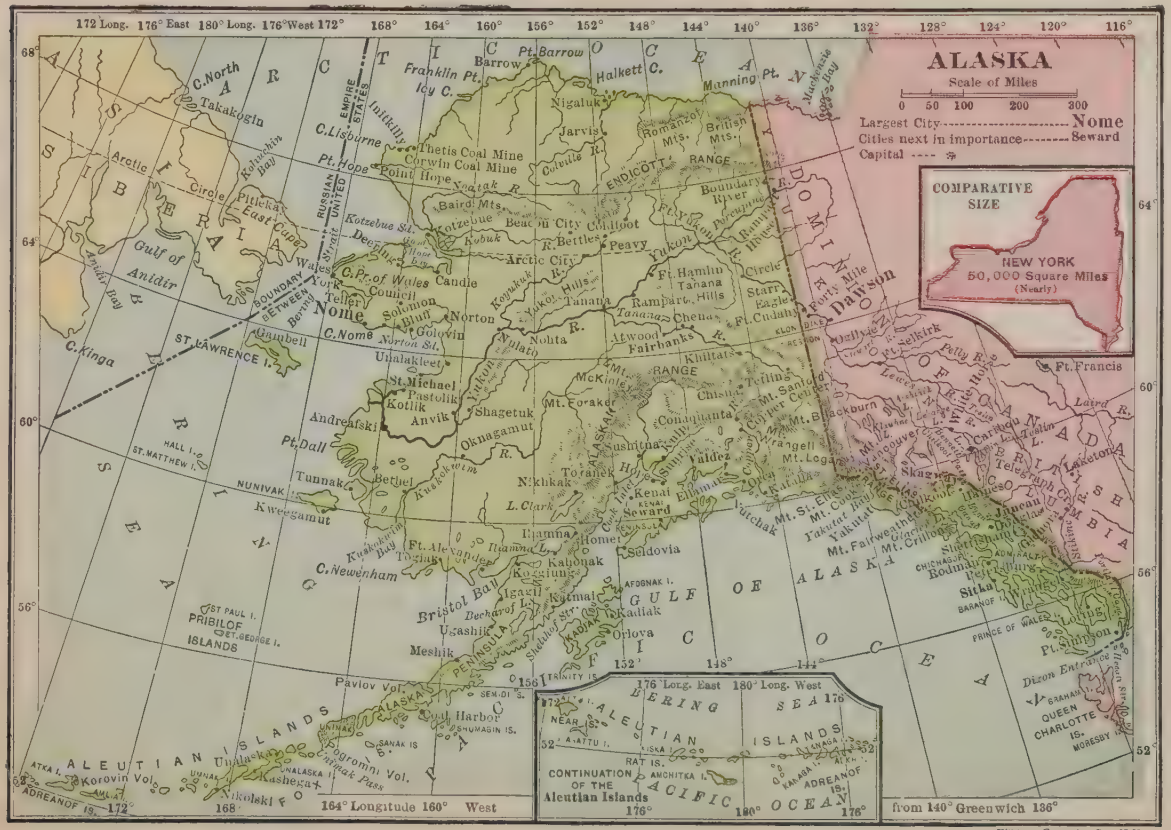
Territory	Date of Acquisition	Area in Sq. Miles	Population
Alaska	June 20, 1867	599,884	54,891
Hawaii	July 7, 1898	6,449	255,912
Philippines	April 11, 1899	121,935	10,350,640
Porto Rico	April 11, 1899	3,606	1,299,809
Guam	April 11, 1899	207	13,275
Samoa	May 8, 1900	56	8,056
Panama Canal Zone	February 26, 1904	474	22,858
Virgin Islands	March 31, 1917	138	26,051

ALASKA

Answer the questions on ALASKA *on this page.*

Surface and Climate. — Alaska was the first territory acquired by the United States beyond its present borders. It was purchased from Russia in 1867 for $7,200,000. The object of the purchase was to gain more power on the Pacific coast, as the country itself then was not thought to be of any commercial value. But its fisheries, forests,

ALASKA. — (1) Describe the location of Alaska: in latitude; as a part of North America. Name its water boundaries. What separates it from Asia? (2) What mountains in Alaska? What noted peaks? Where is mount Logan? Describe the surface of the central part of Alaska. Describe the coast line. (3) What islands west of Alaska? Where are the Aleutian islands? The Pribilof islands? Locate Cook inlet; Norton sound; cape Nome; point Barrow; Bristol bay. (4) Describe the Yukon river. Locate and describe three other rivers in Alaska. (5) What is the capital of Alaska? Locate Sitka; Nome; Circle City.


ALASKA
Scale of Miles
0 50 100 200 300
Largest City---------- Nome
Cities next in importance-------- Seward
Capital ---- ✻
COMPARATIVE SIZE
NEW YORK
50,000 Square Miles
(Nearly)
172 Long. 176° East 180° Long. 176° West 172° 168° 164° 160° 156° 152° 148° 144° 140° 136° 132° 128° 124° 120° 116°
68° 64° 60° 56° 52°
ARCTIC OCEAN
BERING SEA
PACIFIC OCEAN
SIBERIA
ALASKA
DOMINION OF CANADA
Pt. Barrow
Barrow
Halkett C.
Manning Pt.
Franklin Pt.
Icy C.
C. North
Takakosta
Nigaluk
Jarvis
Romanzof Mts.
British Mts.
Mackenzie Bay
Herschel Island
C. Lisburne
Thetis Coal Mine
Corwin Coal Mine
Curtis R.
ENDICOTT RANGE
Arctic Circle
Pt. Hope
Point Hope
Yanrak R.
Boundary
Kotzebue Sd.
Kotzebue
Baird Mts.
Beach
City
Chalkfoot
Peavy
Arctic City
Bettles
Yukon R.
Ft. Yukon
Circle
Gulf of Anadir
Wales
C. Pr. of Wales
Candle
Council
Teller
Solomon
Bluff
Nome
Norton
Golovin
C. Nome
Unalakleet
Ft. Hamlin
Tanana
Rampart
Hills
Staff
Eagle
Ft. Cudahy
Forty Mile
Dawson
Dalhousie
Selkirk
Ft. Francis
Lake of the Woods
Laird R.
Lake Winnipeg
Lake Manitoba
Lake Athabasca
Great Slave Lake
Great Bear Lake
Lake Winnipeg
Lake Superior
Lake Michigan
Lake Huron
Lake Erie
Lake Ontario
Lake Timiskaming
Lake Nipissing
Lake Simcoe
Lake Temiscaming
Lake Abitibi
Lake Nipigon
Lake Winnipegosis

furs, and deposits of gold and other metals have made it a very profitable investment.

Alaska is a vast peninsula, bounded by the Arctic and Pacific oceans and the Bering sea. This sea is nearly enclosed by the Alaskan peninsula, an arm of land projecting from the southern coast and extending under the sea, forming the **Aleutian** chain of islands. Alaska is about twice the size of Texas and nearly one sixth as large as the United States. The surface is mountainous with the exception of the Yukon basin and the northern Arctic slope. The Alaskan mountains in the southern part, an extension of the Rocky mountain

Mount McKinley, the highest peak in the Rocky mountains.

system, are the highest on the continent, and mount McKinley, about four miles high, is the crowning peak.

The **long coast line** of southern Alaska is wonderfully diversified with deep inlets, bounded by high rocky shores, and innumerable peninsulas and islands. The **scenery** of this region is unsurpassed. The mountain valleys are filled with glaciers, many of which find their way to the coast. One of the largest of these is the Muir glacier near Sitka, which attracts many tourists every summer. There are also more than fifty **volcanoes** in the Alaskan chain, many of them active.

From the high latitude of Alaska it will be seen that the **climate** must be very cold and the summers short. It is however much milder than on the eastern side of the continent, on account of the warm western winds that blow over the Japan current. These winds bring a heavy rainfall to the coast and cover the mountains with a great

depth of snow. The rainfall at Sitka averages from 60 to 90 inches. Only the southern part of the country is habitable for civilized men, and those who go into the interior in search of gold are exposed to many hardships. The inhabitants are chiefly Indians and Eskimos with a few thousand white miners, traders, and government officials.

A meadow near the sea, in Alaska, showing luxuriant vegetation.

Products and Industries. — The fisheries are the most profitable industry. Cod, herring, and halibut are abundant near the coast, and the rivers fairly swarm with **salmon**. The export of canned salmon is valued at over $10,000,000 a year. Bering sea is the home of the fur seal. The chief hunting grounds are on the Pribilof islands.

The Kadiak, or Alaska bear.

The **sealing industry** has greatly fallen off in late years on account of the careless destruction of the animals. Although the Government forbids the killing of seals except at certain seasons, and prohibits entirely the killing of females, thousands of them are shot in the waters surrounding the islands every season, where the Government has no power to protect them. The whaling industry in the Arctic is also a profitable occupation,

though dangerous on account of the floating masses of ice. Whaling vessels sometimes become imprisoned in these ice floes, and the sailors must make their way to land on foot as best they can.

An Alaska moose.

Mining. — The discovery of gold in the Klondike region and in the gravels of the rivers along the ocean has brought there thousands of gold seekers. These **miners** have built up a number of prosperous towns, which export gold and silver to the United States and import a large amount of supplies of various kinds, chiefly food, clothing, and mining machinery. The total value of the **exports** is now about $20,000,000 annually, while the **imports** are about the same. Other metals found in Alaska are coal, copper, silver, lead, and tin. Sulphur and marble are also abundant.

Agriculture and Stock-raising. — There is very little farming done in Alaska, but the government experiment stations have successfully raised hardy grains, vegetables, grasses, and small fruits. Cattle and sheep have been introduced on Kodiac island. Reindeer from Siberia have been imported and distributed among the natives. There are now 26,000, divided among 260 owners. This animal supplies the Eskimo with milk, meat, and clothing. It is used also as a draught animal.

Railroad along the Copper river in Alaska.

Lumbering. — The Pacific slope of Alaska has forests of great value. Most

of these are under the care of the Government, and the cutting of timber is restricted.

Cities. — The best known town in Alaska is the former capital, **Sitka**, on Baranof island. The seat of government was transferred to **Juneau** a few years ago, on account of its more convenient location as a point of departure for the gold fields. North of Juneau is **Skagway**, from which the White Pass railway leads to the headwaters of the Yukon. **Nome** is an important mining town on the western coast.

QUESTIONS AND TOPICS. — (1) When and how was Alaska acquired? Object of the purchase. (2) Surface and coast line of Alaska. Scenery. Describe the climate. (3) Describe the fishing industries of Alaska. What is said of sealing? What minerals are found? Value of exports and imports. Farming and stock-raising. Lumbering. (4) Location of Sitka and Juneau. Why was the seat of government changed? What other towns are mentioned?

PORTO RICO

Answer the questions on PORTO RICO, *page* 284

Surface and Climate. — Porto Rico was ceded to the United States as one result of the war with Spain in 1898. It is the most healthful and thickly settled of the West Indies. The island lies within the tropics, just south of the twentieth parallel; it is rectangular in shape and about 100 miles long by 30 miles broad. A low range of forest-covered mountains crosses it from east to west and contains the sources of the many streams that drain the island in every direction. These are separated by low wooded ridges, which branch out from the central range. A broad and nearly level coastal plain almost surrounds the island. The **climate** of these low regions is hot or warm throughout the year. Among the uplands, however, the weather is moderate and uniformly delightful. **Rains** are brought by the northeast trades. The northern and central parts of the island receive an abundance of moisture; on the southern coast irrigation is necessary, in places, to secure successful crops.

People and Industries. — The people of Porto Rico are of Spanish descent and number slightly over a million. About two thirds of them are white, the rest being of the usual West Indian mixed race. They are now making rapid progress in education and industries. There are many small farmers engaged in raising coffee, sugar,

tobacco, and oranges, which are the leading **products** and **exports** of the island. There are cotton and sugar plantations on the northern coast; coffee, tobacco, and fruits of many kinds flourish on the sloping hillsides of the interior.

The mango. Bread fruit. The guava.

Among the forest **trees** are the palm, cedar, sandalwood, ebony, and willow. There are no wild **animals** of large size, but huge tortoises and flocks of green parrots are characteristic of the island. The **fisheries** off the coast are valuable. Though the high interior affords excellent pasture, there is little live stock raised. Minerals of various kinds are common, but there are as yet no mining enterprises. Sugar, tobacco, and straw hats are among the manufactures. **Transportation** is not well provided for; but the United States Government, which took control in 1898, has built many fine military roads connecting the important towns and is constructing a railroad, entirely around the island, to connect all the seaport towns. The rivers are used to transport products to the coast, the natives using canoes and flatboats propelled by poling. Most of the roads of the interior are bad, and as there are few bridges, the streams must be forded by the traveler.

The Governor's palace at San Juan.

Trade. — The food products of Porto Rico are not sufficient to support the people and considerable amounts are imported. Salt fish

is brought from Canada, rice from neighboring islands, and meats, flour, vegetables, and canned goods from the United States. Cotton cloth, shoes, lumber, oil, and iron and steel goods are also among the imports, and there is little manufacturing done on the island. The export of the staple products has increased more than three fold since 1901 and considerably exceeds the imports in value.

Government and Cities.—There is a governor and six heads of departments, appointed by the President of the United States for four years. Five natives are also members of the executive council. A legislative assembly of thirty-five delegates is elected by the people. The islands of Vieques and Culebra are politically a part of Porto Rico. **San Juan** is the capital and chief city. **Ponce** and **Mayaguez** are other important coast towns.

THE PANAMA CANAL ZONE

Answer the questions on CANAL ZONE, *page* 285

This consists of a strip of land extending five miles on each side of the Panama canal. It was purchased by the United States, along with the right to construct the canal, from the Republic of Panama. It includes the Panama railroad and the seaports of **Colon** and **Panama**. Colon was named in honor of Columbus, who first entered the gulf of Darien. It is visited by the ships of all the nations for the transfer of freight and passengers to the Isthmian railway and thence to ports along the Pacific coast. Panama is a very ancient walled city, built on the bay of the same name; it is larger than Colon, but the harbor accommodations are poor. The **inhabitants** of the Canal zone are chiefly those engaged in work on the canal and the tradesmen, farmers, and proprietors of hotels and boarding houses who supply their wants.

The **Panama canal** was completed in January, 1914, at a total cost of about $400,000,000. It is about 50 miles in length, 300 feet wide, and 41 feet deep, and will accommodate the largest vessels afloat. Its chief advantage to the United States will be the shortening of the voyage between New York and the western coast of America by about 8,000 miles. Ships from western Europe can now save about 4,000 miles in making the voyage to the eastern part of Asia and Australia.

THE HAWAIIAN ISLANDS

Answer the questions on *page* 287

General Description. — These islands lie along the tropic of Cancer in the Pacific ocean, about 2,500 miles southwest of San Francisco and about 5,000 miles east of Hongkong. They consist of eight larger **volcanic islands** and a number of smaller islets and rocks, which have been formed out of lava thrown up from the ocean bottom. **Hawaii**, the largest of the islands, is about the size of the state of Connecticut. It has two active volcanoes, one of which, Mauna Loa, rises 14,000 feet above the sea

1. A newly planted rice field. 2. Harrowing the field before planting.

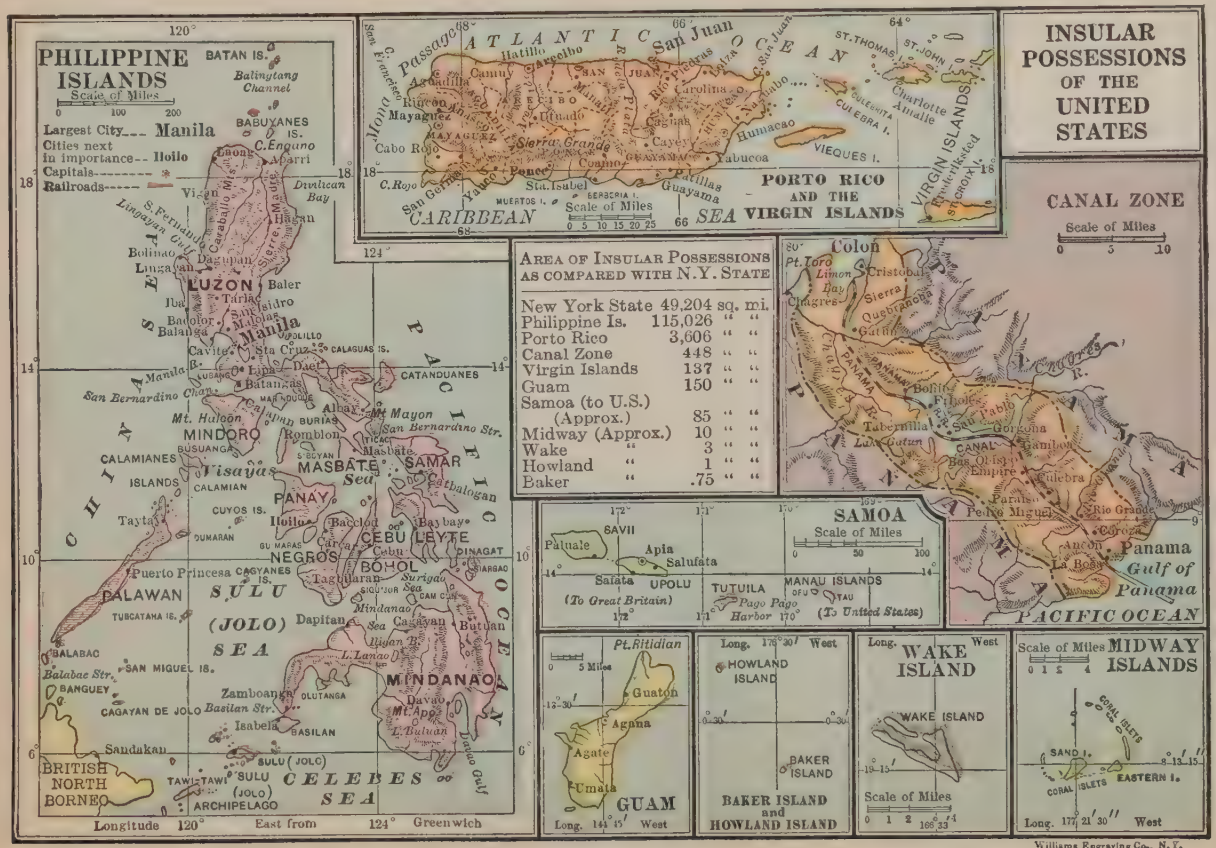
GENERAL. — In what oceans are the island possessions of the United States? Which lies nearest the equator? Nearest the tropic of Cancer? In which zone are they all found?

PORTO RICO. — What is the latitude and longitude of this island? What waters surround it? To what island group does it belong? What is the general shape of Porto Rico? In what part do you find mountains? Where do you find railroads? What is the capital? Where situated? Give the location of Ponce. Of Mayaguez. Of Humacao.

CANAL ZONE. — (1) What sea and gulf are connected by the Panama Canal? (2) What ports at its extremities? (3) What rivers in the Canal Zone? What lake? (4) Name five towns along the canal route. (5) What railroad crosses the Canal Zone?

PHILIPPINE ISLANDS. — What ocean and seas surround these islands? What large island south? What country northwest? What empire north? Name seven of the largest islands. What is the direction of Manila from Hongkong? Give the location of Manila in latitude. On which island is it? Where is Iloilo?

GUAM, TUTUILA, AND WAKE ISLAND. — Give the location of each of these islands in latitude and longitude. Where is Apia? Pago Pago? Agana?



Williams Engraving Co., N.Y.

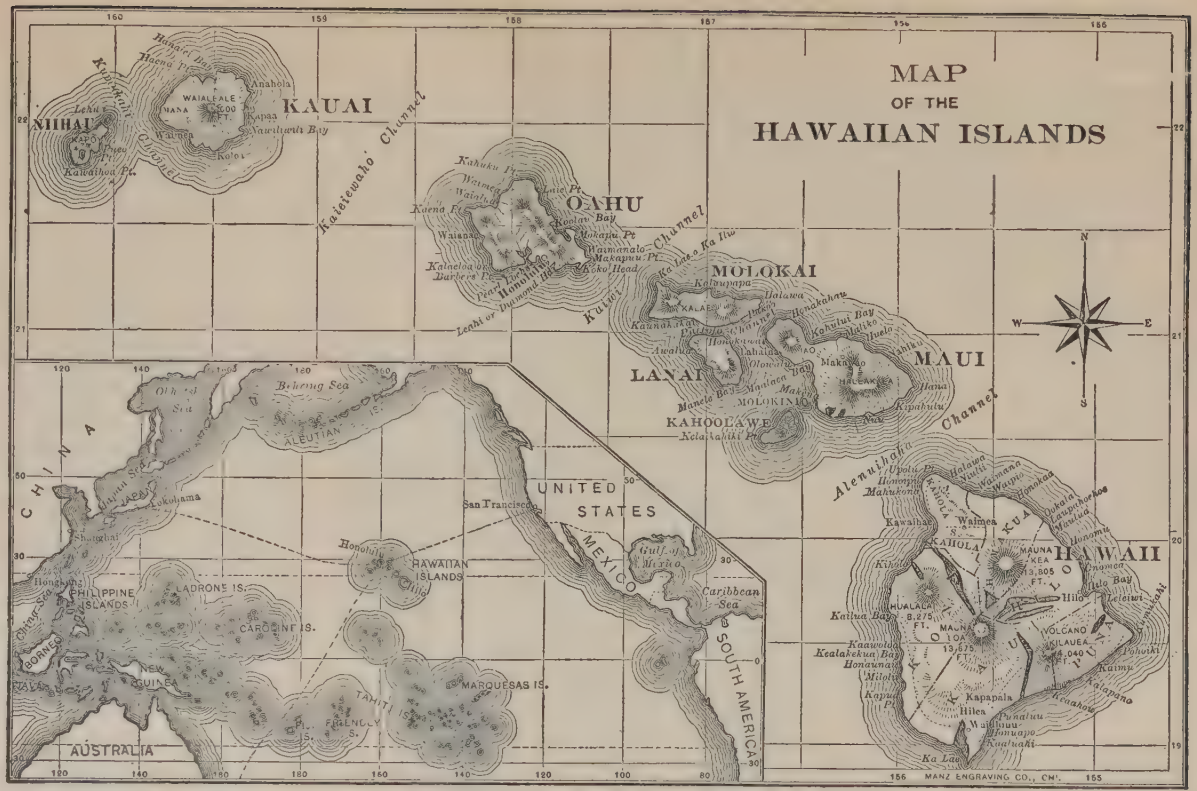
level. The land off the shores of these islands slopes abruptly to the bottom of the sea, which has here a depth of nearly four miles.

The native **inhabitants** are a brown people closely related to the Malay race and resemble the people found in many other islands of the outer fringe of the Pacific archipelago. They no doubt made their way here in very remote times by passing in their canoes from island to island. There are many Chinese and Japanese on the islands as well as English, Americans, and Portuguese. The English and Americans have long had control of the political affairs of the islands. They deposed the native queen and offered the islands to the United States. In 1898, with the consent of the people, they were annexed. Two years later they were organized as a territory of the United States.

The taro plant. Coffee berries. The traveler's palm.

Climate and Soil. — As these islands lie in the path of the trade winds in about the same latitude as Cuba and Porto Rico, they have a mild and equable climate throughout the year with plentiful rain, especially on the windward side of the islands. The leeward shores are often arid, as the mountain ranges cut off the moisture. In some elevated sections the rainfall reaches 300 inches a year, while in others it falls below 20 inches. The soil is usually red or yellow in color and has been formed by the weathering of the volcanic rocks. It is usually of great fertility and well adapted to sugar, coffee, and tropical fruits.

Industries and Trade. — The industries of these islands are almost entirely **agricultural**. A large number of fruits, vegetables, and fiber plants are cultivated to supply the needs of the natives. Among these may be mentioned the pineapple, the tamarind, and the citrus family. The **taro** is the most important vegetable. It is a tuber resembling the potato, and is the chief food plant of the islands.



THE HAWAIIAN ISLANDS. — (1) What is the latitude of this group? (2) In what part of the Pacific do they lie? (3) Which is the largest island? (4) What three volcanoes does it contain? (5) On which island is Honolulu? (6) What is the harbor near Honolulu called? (7) On which island is the city of Hilo? (8) Notice the central location of this group in the Pacific ocean; of what advantage is this?

The fiber of the paper mulberry and of several varieties of grass are used in the manufacture of mats and clothing.

The principal cultivated plants are **sugar** and **coffee**. These are the chief exports. In sugar the islands rank next to Cuba and Java. It is sent chiefly to San Francisco, where it is refined. Fruits, rice, and hides are also among the **exports**. Our exports to Hawaii comprise a long list of manufactured goods, of which flour, meats, cloth, and machinery are the most valuable. They amount in value to about $30,000,000 a year, while our imports from the islands are about $40,000,000.

Value as a Naval Station. — On account of their central position in the Pacific these islands are of great value as a naval station and depot of supplies for ocean steamers. Most steamers crossing the Pacific find it convenient to take on additional supplies of coal at some intermediate point, and Hawaii is the only convenient coaling station in the middle Pacific. The United States Government is improving Pearl harbor on the island of Oahu and fitting it up as a station for our navy. It will have a dry dock, in which the largest vessels may be repaired, and storehouses for supplies of every sort.

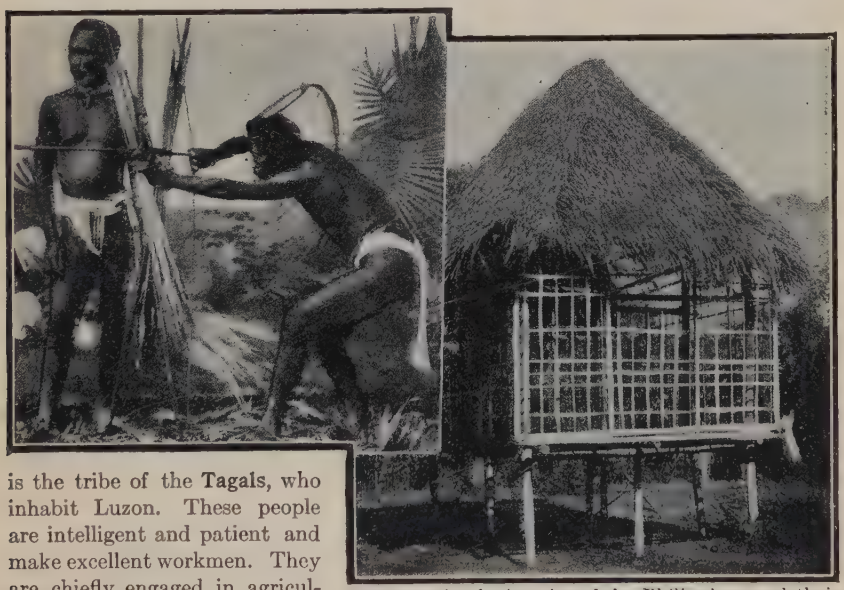
The capital and chief city of Hawaii is **Honolulu**, on the island of Oahu. It is a modern city and an important calling port for ships of all nations. The mails are exchanged here, and the telegraphic cable recently laid between San Francisco and Manila has a landing here. The harbor is the only good one on the islands. The city and port of **Hilo**, on the island of Hawaii, is second in importance.

THE PHILIPPINE ISLANDS

Location, Size, People. — This is a group of continental islands lying off the southeast coast of Asia in latitude six to eighteen degrees north. They were purchased by the United States from Spain in 1898 for $20,000,000. The group includes a large number of islands, some three thousand or more, with a combined area equal to about half that of the state of Texas. The largest and most important of these are Luzon and Mindanao, together nearly equal in size to New York state. The next in order of size are Samar, Negros, Panay, Palaywan, Mindoro, Leyte, and Cebu. **Luzon** is more important

than the others on account of its excellent harbor, Manila bay, on which the capital, **Manila**, is located. It has also the largest population and richer natural resources than Mindanao. The **people** consist of native blacks and Malays, with a mixture of Chinese, besides white races, in all numbering about 8,000,000.

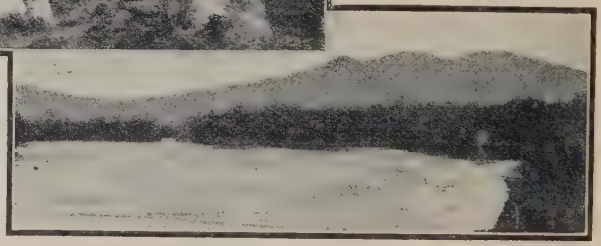
Under the rule of Spain the natives were greatly oppressed and little effort was made to develop the resources of the country. The most civilized of the Malays is the tribe of the **Tagals**, who inhabit Luzon. These people are intelligent and patient and make excellent workmen. They are chiefly engaged in agriculture. Since the occupation of the islands by the United States, railroads and telegraph lines have been built, schools established, and commissioners appointed to develop the industries of the country.



Savages in the interior of the Philippines and their home in course of construction.

Surface and Climate. — These islands are of volcanic origin and are traversed from north to south by numerous ranges of mountains. Twelve **volcanoes** are still active; some of the cones are from 8,000 to 10,000 feet in height, the highest one, mount Apo, being in Mindanao. There are many good-sized **streams**, fresh-water **lakes**, and fertile **valleys** on each of the two larger islands.

The lower courses of some of the streams are navigable for small steamboats. The valleys are covered with a deep soil, made rich by the decayed lava which has been washed down from the hills. The mountainous parts of the islands are heavily forested, and there is everywhere a rich tropical **vegetation**. Palms of many kinds, the bamboo and the mangrove tree are common. There are valuable cabinet woods, including ebony; other trees supply dyes, gums, and drugs. Cinnamon, cloves, and pepper also grow. Earthquake shocks are frequent throughout the islands, and volcanic eruptions sometimes occur.



1. A river in the interior of Mindanao. 2. View of the volcano Apo, the highest point in the Philippines.

The **climate** is tropical with a wet and a dry season, the islands being swept by the **monsoons**, or seasonal winds, which prevail in southeastern Asia. Heavy rains come with the southwest monsoons, which prevail from June to October. Portions of the country are often deluged and converted into impassable swamps by the sudden downpour.

The position and direction of the mountain ranges have an important effect on the rainfall. They not only break the violence of the storms or ward them off altogether, but the leeward sides of mountains uniformly receive less rain than the windward sides. The terrific **typhoons**, or whirling storms, often come with the monsoons, causing great destruction to shipping and other property. The dry season comes with the northeast monsoons during the winter. At this season the islands receive only local showers and frequently suffer from drouth.

Industries and Products. — The chief industries of the Philippines are agricultural, and the best known product is the Manila **hemp**, which forms one third of the exports. This fiber is obtained

from the leaf-stalk of the wild plantain, a plant closely resembling the banana, except that it bears no fruit. The pulp of the leaves is cut and scraped away with a knife and the fibers dried in the sun. It is then ready to be packed into bales for shipment. The finer fibers are used by the natives in making "abaca" cloth. Other important farm products are sugar, tobacco, corn, rice, cacao, and cocoanuts. The tobacco is made into cigars, the chief manufacture of the islands.

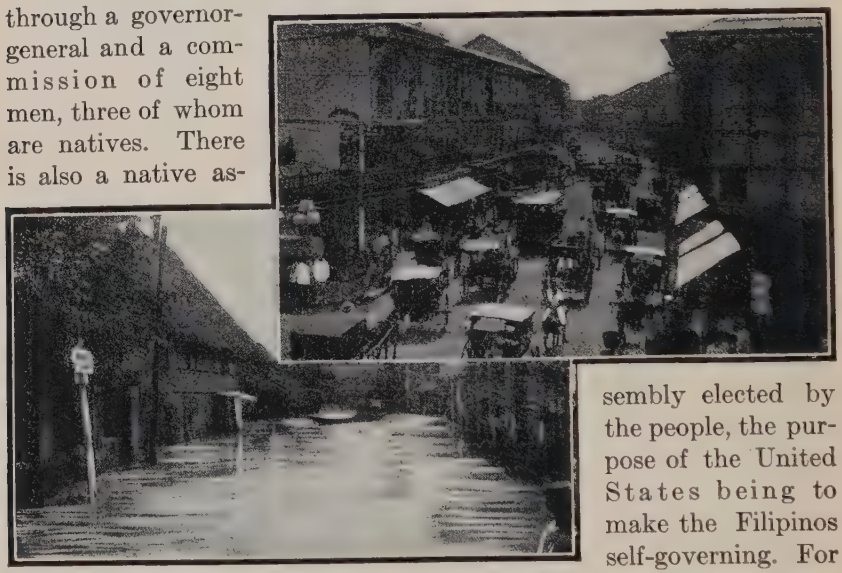
A Filipino girl selling mangoes.

Raw sugar is the second largest product and is exported to China, Japan, and the United States. Immense quantities of **cocoanuts** are brought down to the seashore on rafts. The meat, when extracted and dried, is called **copra**; it supplies an oil used in soap-making and is exported to the countries of Europe. **Rice** and **sweet potatoes** are widely grown and form the "staff of life" for the Filipino people. Two of the most useful plants on the islands are the **bamboo** and the **rattan**, both of which are species of reeds and split easily into fibers. The bamboo serves not only for house-building and fences, but for mats, cloth, water pipes, fishing rods, and "wicker-work" of various kinds. The rattan makes excellent furniture, window screens, and trellis work as well as baskets, hats, rope, mats, and even small bridges.

Many **metals** exist on the islands, but it is not known to what extent. **Coal**, **iron**, **copper**, and **gold** have been found in considerable quantities, and silver, lead, and petroleum are also present. An animal most useful to the Filipino farmer is

the **carabao**, or **water-buffalo**; these animals are caught when young and domesticated. A tough native pony serves as a saddle-horse. Many goats are kept for milk and flesh, but cattle are not very numerous. Deer, wild hogs, apes, and monkeys are found in the forests, and crocodiles, poisonous serpents, and many troublesome insects in the lowlands.

Government, Cities, and Trade. — The islands are governed through a governor-general and a commission of eight men, three of whom are natives. There is also a native assembly elected by the people, the purpose of the United States being to make the Filipinos self-governing. For purposes of **local administration** the country is divided into thirty provinces, the officers being part native and part American. The chief city and center of manufactures, commerce, government, and social life is **Manila**. This is a city of 200,000 inhabitants, situated along the Pasig river at its entrance to Manila bay. The harbor is one of the best on the Pacific. Manila is connected by cable with Honolulu and San Francisco and with the coast cities of Asia. Other important cities are Laoag, Ilocos, and Iloilo. The greater part of the trade of the islands is with the countries of Europe. The United States sells to them iron and steel, flour, cotton, cloth, meat, and various manufactured goods.



1. The chief business street in Manila. 2. Another street during the rainy season.

GUAM AND TUTUILA

Guam, one of the Marianas, or Robber islands, was ceded to the United States by Spain in 1898. It is a fertile, thickly wooded, and well-watered island and is chiefly useful to us as a telegraph and coaling station. The **people** resemble the Filipinos and speak Spanish. The **products** of the island are tropical fruits, cacao, rice, corn, tobacco,

A group of natives of the Marianas islands.

sugar, and coffee. The **cotton tree** is found upon the island, furnishing a downy fiber used in making cloth; also a species of screw **pine** which furnishes a fiber for making hats and rugs. The only export of much value is **copra**; foods and manufactured goods are imported from the United States, the most valuable being rice, furniture, cottons, and iron and steel goods.

Tutuila and several others of the Samoan, or Navigator, group of islands came into the possession of the United States by treaty and a friendly understanding with Germany, which owns the rest of the group. A coaling and repair station is maintained by this country

TRADE AND TRANSPORTATION. — (1) Trace the ocean routes from New York, Boston, and New Orleans to Liverpool, Havre, and Hamburg. (2) What is the length of each route? (3) What products are carried from the United States to each of these European countries? (4) What products are brought back? (see page 266)? (5) Trace the routes from San Francisco to Nome, Yokohama, Shanghai, Manila, and Sydney. (6) What is the length of each route? (7) Describe the foreign trade of San Francisco. (8) What six routes lead out from Honolulu? (9) What is the length of each? (10) Note the central position of Honolulu. What advantages does this position afford? (11) What is the distance from San Francisco to New York by way of cape Horn? By way of Panama? (12) Trace the route from Punta Arenas to Wellington; from Wellington to Hobart; from Hobart to Cape Town; from Cape Town to the Cape Verde islands and London. (13) Trace the shortest route from London

to Montreal, Vancouver, and Yokohama. Which part of it is by land? (14) Describe the trade which is carried on by this route. (15) Trace the route from Calcutta to London by way of the Suez canal. What calling ports along this route? (16) At what ports might a steamer call on a voyage from Bombay to Cape Town? (17) What ports on the western coast of Africa? (18) What ports on the eastern coast of South America? (19) Name some of the products shipped from each of these ports. (20) What important ports on the east coast of Asia? (21) Tell something of the trade of each of these ports. (22) Between what countries and along what coasts do you find submarine cables? (23) Trace the cable between San Francisco and Manila. (24) What continents are crossed by lines of railway? (25) Trace a route by land and water around the earth from London westward.

in the excellent harbor of **Pago Pago**. Tropical fruits, coffee, and sugar are the chief products; copra is exported.

Wake island and a dozen other rocks and coral reefs, scattered through the Pacific ocean, also belong to the United States; but none

The city of Agana, Guam.

of these are of any importance to production and commerce. There are telegraph and relay stations at Wake island and the Midway group, but these islands have no inhabitants except the men in charge of the instruments.

QUESTIONS AND TOPICS. — (1) Name the foreign possessions of the United States. Which four are the largest and most important? Name the several additions which have been made to the original territory of the United States from 1783 to 1867. (2) How was Alaska acquired? What was the object of the purchase? Describe the surface; the scenery. What are the two leading industries? What is said of agriculture? Compare the northern and southern coasts as to surface and climate. (3) Location and size of Porto Rico. Describe the surface. Why are there many rivers? What of the rainfall? People. Occupations. Products. Transportation facilities. Describe the trade. Why is so little food produced? How is the island governed? (4) Size of the Panama Canal zone. Why is it important for the United States to own this land? Describe the two cities at the extremities of the canal. (5) Describe the location of the Hawaiian islands. Why is this location valuable? Give an account of the origin and surface of the islands. What is said of the native population? Of the foreigners? What advantages of soil and climate have these islands? What are the chief products? Why is Hawaii especially useful as a coaling station? (6) How and when were the Philippines acquired? Area. Number. Largest islands. Describe the people. Why are the islands backward in civilization? Describe the surface of the Philippines. What causes affect their climate? What are the leading products of the islands? What useful trees are found? What products are exported? How are the islands governed? What is said of the cities? (7) What is the location of Guam? Describe its people, products, and exports. Where is Tutuila? What is said of its harbor? Of its productions? What is the chief value of the island? Wake island.

INDEX AND PRONUNCIATIONS

The authorities followed in spelling and pronunciation are Webster's International Dictionary, edition of 1910, and the decisions of the United States Geographic Board.

KEY TO THE SYMBOLS USED. —**Vowels:** ā *as in* āle, å *as in* senåte, â *as in* câre, ă *as in* ăm, ä *as in* ärm, å *as in* åsk; ē *as in* ēve, ĕ *as in* ĕvent, ĕ *as in* ĕnd, ē *as in* makēr; ī *as in* īce, ĭ *as in* ĭll; ō *as in* ōld, ŏ *as in* ŏbey, ô *as in* ôrb, ŏ *as in* ŏdd; ū *as in* ūse, ů *as in* ůnite, û *as in* ûrn, ŭ *as in* ŭp, ü *as in German* ü *or French* ü. **Diphthongs:** ou *as in* out, oi *as in* oil, o͞o *as in* mo͞on, o͝o *as in* fo͝ot. **Consonants:** ch *as in* chair, g *as in* go, t͟h *as in* t͟hen, th *as in* thin. *Italics* are silent.

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Key. — āle, senåte, câre, ăm, ärm, åsk; ēve, ĕvent, ĕnd, makēr; īce, ĭll; ōld, ŏbey, ôrb, ŏdd; ūse, ůnite, ûrn, ŭp, menü; out, oil, fo͝od, fo͝ot; chair, go, t͟hen, thin.

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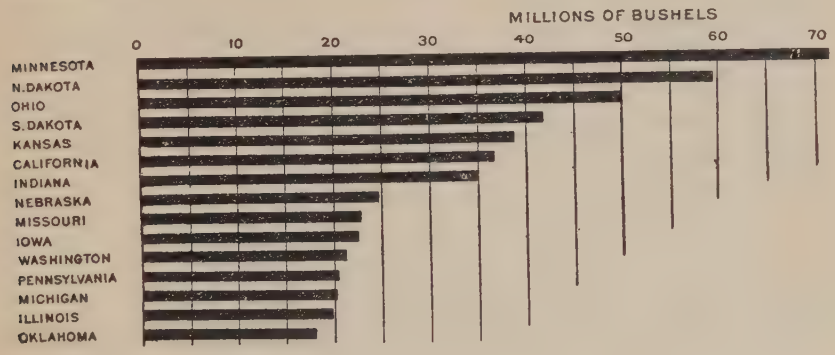
APPENDIX

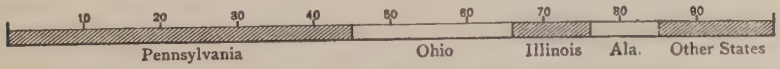
COMPARATIVE GEOGRAPHY BY GRAPHIC REPRESENTATION

A useful method of studying the rank of the several states or countries in population, industries, etc., is by means of production maps and graphic illustration. Several forms of production maps have been given in the chapters on Products. The basis for these is an outline map of the United States giving the state boundaries. The



Production of wheat in the United States in 1900.

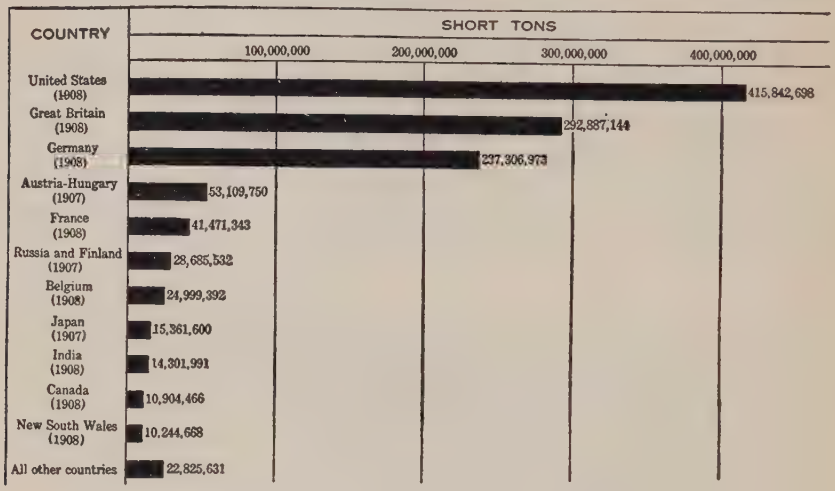
statistical tables given at the end of the chapters on the Groups of States, and those given at the end of the chapters on Products, supply the necessary information for the construction of production maps. We find for example that Minnesota produced in 1900 about 70,000,000 bushels of wheat, and that the area of the state is 84,000 square miles.



The production of steel in the United States in 1900. The numbers at the top of the scale indicate per cents. The entire scale represents 100 per cent.

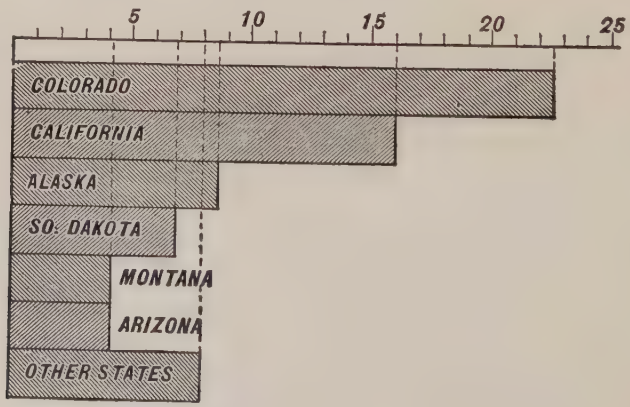
This would be a yield of about 875 bushels to the square mile. In the same way we may find the average yield per square mile of the other leading wheat states. Taking our outline map of the United

States, we may by means of color or lines indicate the states whose production of corn exceeds an average of five hundred bushels per square



Coal production in the chief countries of the world.

mile; by another color or character of line indicate those whose production exceeds two hundred bushels per square mile, leaving the states uncolored that fall below two hundred bushels.



Gold production in the United States in 1904. The numbers on the scale indicate million dollars.

Another method is to compare the value of the productions of the states according to population. Thus the population of Illinois is 5,638,591, and the value of the corn crop in 1909 about $192,000,000. This gives an approximate average of $30 per capita. Iowa shows an average of about $70 per capita and Missouri of $40 per person. We may indicate on an outline map the states where the corn yield exceeds $25 per capita, and by a different mark the states yielding from $10 to $25, leaving unmarked those falling below $10 per capita. Instead of colors or lines, shaded circles may be used to indicate relative production, as on pages 82, 83.

The manufactures of the United States in 1900.

A simple form of graphic illustration is shown in the diagram representing the steel production of the United States in 1900. The entire production, 100 per cent, is shown by a series of oblongs. The first oblong shows that Pennsylvania made 45 per cent of the entire output, Ohio about 20 per cent, etc.

The diagram showing the wheat production of fifteen leading states in 1900 explains itself. Each vertical line marks off five million bushels. The diagram showing gold production in 1904 also has a scale at the

top dividing into million dollar units, and the production of each state is carried by dotted lines to this scale so that it may be easily read.

Another form of graphic illustration frequently used is the circle. In the illustration given, the circle represents the manufactures of the United States in 1900. By dividing the circumference of the circle into degrees, it is easy to find out just what percentage each class of manufactures is of the entire product. The circle may be used in representing graphically any of the productions of the country according to states, or the relative values of the productions of any one state. It may also be used in comparing the relative production of different countries, etc.

DIMENSIONS OF THE EARTH

Polar diameter of the earth	7,899	miles
Equatorial diameter of the earth	7,926	"
Length of the equator	24,902	"
Length of a meridian circle	24,857	"
Average length of a degree of latitude	69	"
Length of a degree of longitude at the equator	69.2	"
" " " " " " 10° north or south	68	"
" " " " " " 20° " " "	65	"
" " " " " " 30° " " "	69	"
" " " " " " 40° " " "	52.3	"
" " " " " " 50° " " "	44.4	"
" " " " " " 60° " " "	34.5	"
" " " " " " 70° " " "	23.6	"
" " " " " " 80° " " "	12	"
" " " " " " 90° " " "	0	"

TOTAL AREA OF EARTH'S SURFACE	**196,907,000**	square	miles
Pacific Ocean	71,000,000	"	"
Atlantic Ocean	34,000,000	"	"
Indian Ocean	28,000,000	"	"
Antarctic Ocean	7,500,000	"	"
Arctic Ocean	4,000,000	"	"
Total Sea	**144,500,000**	"	"

THE CONTINENTS

		Population
North America	9,431,000	135,000,000
South America	6,856,000	60,600,000
Eutope	3,842,000	400,700,000
Asia	17,046,000	909,199,000
Africa	11,512,000	141,204,000
Australia	3,456,000	6,458,000
Polar Lands	254,000	
Total Land	**52,407,000**	**1,653,161,000**

AREA OF LAKES

	Area in Square Miles		Area in Square Miles
Caspian	168,765	Erie	9,960
Victoria	32,167	Winnipeg	9,400
Superior	31,200	Balkash	8,550
Aral	26,766	Ontario	7,240
Huron	23,800	Ladoga	7,000
Michigan	22,450	Titicaca	3,261
Tanganyika	14,000	Nicaragua	2,800
Baikal	13,197	Great Salt Lake	2,300
Tchad	10,400	Dead Sea	353

LENGTH OF RIVERS AND BASIN AREAS

	Miles	Basin Area in Square Miles
Mississippi	4,200	1,250,000
Nile	3,900	1,300,000
Amazon	3,400	2,320,000
Yangtze	3,100	690,000
Yenisei	3,000	1,500,000
Obi	3,000	1,100,000
Niger	2,900	1,000,000
Kongo	2,800	1,500,000
Lena	2,800	900,000
Hoangho	2,800	390,000
Amur	2,700	780,000
Mekong	2,600	280,000
Plata	2,500	1,150,000
Volga	2,300	590,000
St. Lawrence	2,100	565,000
Mackenzie	2,100	680,000
Yukon	2,000	380,000
Euphrates	2,000	490,000
Indus	1,900	360,000
Nelson-Saskatchewan	1,900	470,000
San Francisco	1,800	210,000
Ganges	1,800	600,000
Rio Grande	1,800	230,000
Danube	1,800	320,000
Zambezi	1,600	580,000
Orinoco	1,500	425,000
Colombia	1,400	290,000
Dnieper	1,300	197,000
Orange	1,200	270,000
Murray	1,100	350,000
Magdelana	1,100	90,000
Colorado	1,000	230,000
Po	460	27,000

HEIGHTS OF PRINCIPAL MOUNTAINS AND PLATEAUS

	Feet		Feet
Mt. Everest, Nepal	29,002	Chimborazo (vol.), Ec.	20,517
Mt. Aconcagua, Argentina	23,082	Mt. McKinley, Alaska	20,464
Sahama (vol.), Bolivia	22,350	Mt. Killimanjaro, Africa	20,000
Mt. Sorata, Bolivia	21,286	Himalaya Mts., Asia	19,000

	Feet
Demavend (vol.), Persia	18,846
Karakoram Mts., Tibet	18,500
Mt. Elburz, Caucasus	18,493
Orizaba (vol.), Mex.	18,314
Mt. St. Elias, Alaska	18,024
Hindu-Kush Mts., Asia	18,000
Mt. Kenia, Africa	18,000
Keunlun Mts., Tibet	18,000
Thian Shan Mts., Asia	18,000
Popocatepetl (vol.) Mex.	17,784
Cotopaxi (vol.), Ec.	16,291
Mt. Blanc, France	15,744
Tibet Plateau	15,000
Mt. Whitney, Cali.	14,502
Mt. Shasta, Cali.	14,380
Mt. Rainier, Wash.	14,363
Longs Peak, Colo.	14,275
Fujiyama (vol.), Japan	14,177
Pikes Peak, Colo.	14,111
Mauna Kea (vol.), Hawaii.	13,953
Fremont Peak, Wyo.	13,790
Andes Mts.	13,000
Bolivian Plateau	12,500
Mt. Hooker, Canada	12,000
Etna (vol.), Sicily	10,874
Caucasus Mts.	10,000
Rocky Mts.	10,000

	Feet
Atlas Mts.	9,000
Cascade Mts.	9,000
Sierra Nevada Mts.	9,000
Alps Mts.	8,500
Pyrenees Mts.	8,000
Mexican Plateau	7,500
Mt. Mitchell, N. C.	6,711
Abyssinian Highland	6,500
Altai Mts.	6,300
Mt. Washington, N. H.	6,279
Hecla (vol.), Iceland	5,110
Carpathian Mts.	5,000
Iran Plateau, Persia	5,000
Rocky Mountain Highland	5,000
Balkan Mts.	4,500
Vesuvius (vol.), Italy	4,205
Apennines Mts., Italy	4,000
Mongolian Plateau, Asia	3,500
Ural Mts.	3,500
Coast Ranges, U. S.	3,000
Jura Mts., France	3,000
Kiolen Mts., Norway	3,000
Appalachian Mts., U. S.	2,500
Bohmerwald, Austria	2,500
Brazilian Plateau	2,000
Dekkan Plateau, India	2,000
Guiana Plateau	2,000

THE FIFTY LARGEST CITIES OF THE UNITED STATES IN 1920

City	Population
New York, N. Y.	5,620,048
Chicago, Ill.	2,701,705
Philadelphia, Pa.	1,823,158
Detroit, Mich.	993,739
Cleveland, Ohio	796,836
St. Louis, Mo.	772,897
Boston, Mass.	748,060
Baltimore, Md.	733,826
Pittsburgh, Pa.	588,193
Los Angeles, Cal.	576,073
Buffalo, N. Y.	506,775
San Francisco, Cal.	508 410
Milwaukee, Wis.	457,147
Washington, D. C.	437,571
Newark, N. J.	414,216
Cincinnati, Ohio	401,247
New Orleans, La.	387,219
Minneapolis, Minn.	380,582
Kansas City, Mo.	324,410
Seattle, Wash.	315,652
Indianapolis, Ind.	314,194
Jersey City, N. J.	297,864
Rochester, N. Y.	295,750
Portland, Ore.	258,288
Denver, Col.	256,369

City	Population
Toledo, Ohio	243,109
Providence, R. I.	237,595
Columbus, Ohio	237,031
Louisville, Ky.	234,891
St. Paul, Minn.	234,595
Oakland, Cal.	216,361
Akron, Ohio	208,435
Atlanta, Ga.	200,616
Omaha, Neb.	191,601
Worcester, Mass.	179,754
Birmingham, Ala.	178,270
Syracuse, N. Y.	171,717
Richmond, Va.	171,667
Memphis, Tenn.	162,351
San Antonio, Texas	161,379
Dallas, Texas	158,976
Dayton, Ohio	152,559
Bridgeport, Conn.	143,538
Houston, Texas	138,076
Hartford, Conn.	138,036
Scranton, Pa.	137,783
Grand Rapids, Mich.	137,634
Paterson, N. J.	135,866
Youngstown, Ohio	132,358
Springfield, Mass.	129,563

AREA AND POPULATION OF THE UNITED STATES AND ITS DEPENDENCIES. CENSUS OF 1920

Area of United States	**3,026,715**	square miles
Area of Dependencies	**732,799**	" "
Total Area	**3,759,514**	" "
Population of United States		**105,708,771**
Population of Dependencies		**12,148,358**
Total Population		**117,857,129**

States	Area in Square Miles	Population
Alabama	51,998	2,348,174
Arizona	113,956	333,903
Arkansas	53,335	1,752,204
California	158,297	3,426,861
Colorado	103,948	939,629
Connecticut	4,965	1,380,631
Delaware	2,370	223,003
District of Columbia	70	437,571
Florida	58,666	968,470
Georgia	59,265	2,895,832
Idaho	84,313	431,866
Illinois	56,665	6,485,280
Indiana	36,354	2,930,390
Iowa	56,147	2,408,021
Kansas	82,158	1,769,257
Kentucky	40,598	2,416,630
Louisiana	48,506	1,798,509
Maine	33,040	768,014
Maryland	12,327	1,449,661
Massachusetts	8,266	3,852,356
Michigan	57,980	3,668,412
Minnesota	84,682	2,387,125
Mississippi	46,865	1,790,618
Missouri	69,420	3,404,055
Montana	146,572	548,889
Nebraska	77,520	1,296,372
Nevada	110,690	77,407
New Hampshire	9,341	443,083
New Jersey	8,224	3,155,900
New Mexico	122,634	360,350
New York	49,204	10,384,829
North Carolina	52,426	2,559,123
North Dakota	70,837	645,680
Ohio	41,040	5,759,394
Oklahoma	70,057	2,028,283
Oregon	96,699	783,389
Pennsylvania	45,126	8,720,017
Rhode Island	1,248	604,397
South Carolina	30,989	1,683,724
South Dakota	77,615	636,547
Tennessee	42,022	2,337,885
Texas	265,896	4,663,228

States	Area in Square Miles	Population
Utah	84,990	449,396
Vermont	9,564	352,428
Virginia	42,627	2,309,187
Washington	69,127	1,356,621
West Virginia	24,170	1,463,701
Wisconsin	56,066	2,632,067
Wyoming	97,914	194,402

TERRITORIES AND DEPENDENCIES

Alaska	599,884	54,899
Hawaii	6,499	255,912
Porto Rico	3,606	1,299,809
Philippine Islands	121,935	10,350,640
Guam	207	13,275
Samoa	56	8,056
Canal Zone	474	22,858
Virgin Islands	138	26,051
Military and Naval Persons Abroad		116,858

Mary Paul
8 a.m.